

NavSoft's

2017

Nautical Almanac

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Formulae

$$\text{Dip} = 0.971 \times \text{Ht}^{1/2}$$

or

$$\text{Dip} = 1.758 \times \text{Ht}^{1/2}$$

Ht in feet

Ht in meters

$$\text{Refraction} = 0.96 / \tan(\text{Alt})$$

Altitude > 11°

$$\text{Parallax} = \text{HP} \times \cos(\text{Alt})$$

$$\cos(\text{Zenith Distance}) = \sin(\text{Lat}) \times \sin(\text{Dec}) + \cos(\text{Lat}) \times \cos(\text{Dec}) \times \cos(\text{LHA})$$

$$\tan(\text{Azimuth}) = \sin(\text{LHA}) / [\cos(\text{Lat}) \times \tan(\text{Dec}) - \sin(\text{Lat}) \times \cos(\text{LHA})]$$

ABC Tables

$$A = \cos(\text{Lat}) \times \tan(\text{Dec})$$

$$B = \sin(\text{Lat}) \times \cos(\text{LHA})$$

$$C = \sin(\text{LHA}) / \tan(\text{Azimuth})$$

or

$$\text{Azimuth} = \text{Atan}[C / \sin(\text{LHA})]$$

Increments

$$\text{Sun} = 15^\circ / \text{hour}$$

$$\text{Moon} = 14^\circ.316666' / \text{hour}$$

$$\text{Aries} = 15^\circ.041666' / \text{hour}$$

Horizontal Parallaxes and Semi-Diameters for 2017

	Sun	Venus		Mars		Jupiter	Saturn
	SD	HP	SD	HP	SD	SD	SD
Jan 1	16'.3	0'.19	0'.18	0'.09	0'.05	0'.28	0'.11
Jan	16'.3	0'.22	0'.21	0'.08	0'.04	0'.29	0'.11
Feb	16'.2	0'.33	0'.32	0'.08	0'.04	0'.32	0'.12
Mar	16'.1	0'.50	0'.48	0'.07	0'.04	0'.34	0'.12
Apr	15'.9	0'.43	0'.41	0'.06	0'.03	0'.35	0'.13
May	15'.8	0'.27	0'.26	0'.06	0'.03	0'.33	0'.13
Jun	15'.7	0'.18	0'.18	0'.06	0'.03	0'.31	0'.14
Jul	15'.7	0'.14	0'.14	0'.06	0'.03	0'.28	0'.13
Aug	15'.8	0'.12	0'.11	0'.06	0'.03	0'.26	0'.13
Sep	15'.9	0'.10	0'.10	0'.06	0'.03	0'.25	0'.12
Oct	16'.0	0'.09	0'.09	0'.06	0'.03	0'.24	0'.12
Nov	16'.2	0'.09	0'.09	0'.06	0'.03	0'.24	0'.11
Dec	16'.2	0'.09	0'.08	0'.07	0'.04	0'.25	0'.11
Dec 31	16'.3	0'.09	0'.08	0'.07	0'.04	0'.26	0'.11

15th day of each month unless stated

Sun's HP = 0'.15

HP for Jupiter and Saturn < 0'.05

This Almanac was compiled using AstroNav which will print pages for any dates between 9999BC and 9999AD. It also includes data for all visible bodies at less than the cost of a printed Nautical Almanac. Further details and a demonstration version can be found at navsoft.com/astronav.html

Supplementary tables, which do not change from year to year, are available at navsoft.com/downloads.html

2017 January 1, 2, 3 (Sun, Mon, Tue)

	GMT	ARIES	VENUS		-4.4	MARS		+0.9	JUPITER		-2.0	SATURN		+8.2	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
			GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec		Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP		Nautical	Civil		1	2	3
Sunday	00	100° 50'2	130° 38'5	13° 41'9 S		119° 24'8	8° 48'6 S		260° 48'8	7° 03'6 S		200° 08'3	21° 52'4 S		Acamar	315° 16'3	40° 14'6 S	179° 08'2	22° 59'9 S	147° 06'1	11'1	15° 20'2 S	6'3	56'0	N 72°	08:23	10:39	-	11:58	11:49	11:41
	01	115° 52'6	145° 38'4	40'8		134° 25'5	47'8		275° 51'0	03'7		215° 10'5	52'4		Achernar	335° 25'0	57° 09'4 S	194° 07'9	59'7	161° 36'2	11'1	13'9	6'3	56'1	N 70°	08:04	09:47	-	11:30	11:31	11:31
	02	130° 55'1	160° 38'3	39'7		149° 26'2	47'1		290° 53'2	03'8		230° 12'6	52'5		Acruz	173° 06'4	63° 11'2 S	209° 07'6	59'5	176° 06'3	11'1	07'6	6'4	66°	68°	07:49	09:16	-	11:09	11:17	11:22
	03	145° 57'6	175° 38'2	38'6		164° 27'0	46'3		305° 55'5	03'9		245° 14'8	52'5		Adhara	255° 10'2	28° 59'9 S	224° 07'3	59'3	190° 36'4	11'1	01'2	6'5	64°	66°	07:37	08:52	10:25	10:52	11:05	11:15
	04	161° 00'0	190° 38'1	37'5		179° 27'7	45'6		320° 57'7	04'0		260° 17'0	52'5		Aldebaran	290° 46'3	16° 32'4 N	239° 07'1	59'1	205° 06'5	11'1	14° 54'7 S	6'6	62°	64°	07:26	08:33	09:48	10:39	10:56	11:09
	05	176° 02'5	205° 38'0	36'4		194° 28'4	44'8		335° 59'9	04'1		275° 19'1	52'5					254° 06'8	58'9	219° 36'6	11'2	48'1	6'7		62°	07:17	08:18	09:22	10:27	10:47	11:04
	06	191° 05'0	220° 37'9	35'3		209° 29'1	44'1		351° 02'1	04'1		290° 21'3	52'5		Alioth	166° 18'7	55° 51'8 N	269° 06'5	58'9	234° 06'8	11'1	41'4	6'7	56'2	N 58°	07:02	07:54	08:45	10:08	10:34	10:55
	07	206° 07'4	235° 37'8	34'2		224° 29'8	43'3		6° 04'3	04'2		305° 23'4	52'6		Alkaid	152° 57'2	49° 13'6 N	284° 06'2	58'5	248° 36'9	11'2	34'7	6'8		56°	06:55	07:44	08:31	10:01	10:28	10:52
	08	221° 09'9	250° 37'7	33'1		239° 30'5	42'6		21° 06'5	04'3		320° 25'6	52'6		Alnair	27° 41'1	46° 52'9 S	299° 05'9	58'3	263° 07'1	11'2	27'9	6'9	54°	54°	06:50	07:35	08:19	09:54	10:23	10:49
	09	236° 12'4	265° 37'7	32'0		254° 31'2	41'8		36° 08'7	04'4		335° 27'8	52'6		Alnilam	275° 43'6	1° 11'7 S	314° 05'6	58'1	277° 37'3	11'2	21'0	7'0	52°	50°	06:44	07:27	08:08	09:48	10:18	10:46
	10	251° 14'8	280° 37'6	30'9		269° 31'9	41'1		51° 11'0	04'5		350° 29'9	52'6		Alphard	217° 53'5	8° 44'0 S	329° 05'3	57'8	292° 07'5	11'2	14'0	7'0		50°	06:39	07:20	07:58	09:42	10:14	10:43
	11	266° 17'3	295° 37'5	29'8		284° 32'7	40'3		66° 13'2	04'6		5° 32'1	52'6					344° 05'0	57'6	306° 37'7	11'2	07'0	7'1	56'3	45°	06:28	07:05	07:38	09:30	10:05	10:37
	12	281° 19'7	310° 37'4	13° 28'7 S		299° 33'4	8° 39'6 S		81° 15'4	7° 04'7 S		20° 34'2	21° 52'7 S		Alphecca	126° 09'3	26° 39'5 N	359° 04'7	22° 57'4 S	321° 07'9	11'2	13° 59'9 S	7'2	56'3	N 40°	06:18	06:52	07:22	09:20	09:57	10:32
	13	296° 22'2	325° 37'3	27'6		314° 34'1	38'8		96° 17'6	04'8		35° 36'4	52'7		Alpheratz	357° 41'0	29° 11'1 N	14° 04'4	57'2	335° 38'1	11'3	52'7	7'3		35°	06:09	06:40	07:08	09:12	09:51	10:28
	14	311° 24'7	340° 37'2	26'5		329° 34'8	38'1		111° 19'8	04'9		50° 38'6	52'7		Altair	62° 06'2	8° 55'0 N	29° 04'1	57'0	350° 08'4	11'2	45'4	7'4		30°	06:00	06:30	06:56	09:04	09:45	10:24
	15	326° 27'1	355° 37'1	25'4		344° 35'5	37'3		126° 22'0	04'9		65° 40'7	52'7		Ankaa	353° 13'5	42° 13'1 S	44° 03'8	56'8	4° 38'6	11'3	38'0	7'4		20°	05:44	06:12	06:36	08:51	09:35	10:18
	16	341° 29'6	10° 37'1	24'3		359° 36'2	36'6		141° 24'3	05'0		80° 42'9	52'7		Antares	1															

2017 January 4, 5, 6 (Wed, Thur, Fri)

	GMT	ARIES			VENUS			-4.4			MARS			+0.9			JUPITER			-2.0			SATURN			+8.2			STARS			SUN			MOON							Lat	Twilight		Sunrise	Moonrise		
		GHA			GHA			GHA			GHA			GHA			GHA			GHA			Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	4	5	6										
Wednesday	00	103° 47.6	130° 33.9	12° 22.2 S	120° 16.3	7° 54.2 S	263° 28.8	7° 09.8 S	202° 43.8	21° 53.8 S	Acamar	315° 16.3	40° 14.6 S	178° 47.3	22° 43.1 S	111° 37.3	11.5	4° 57.3 S	10.5	57.6	N 70°	08:01	09:42	-	11:30	11:29	11:28																					
	01	118° 50.1	145° 33.9	21.1	135° 17.0	53.4	278° 31.1	09.9	217° 46.0	53.8	Achernar	335° 25.0	57° 09.5 S	193° 47.1	42.8	126° 07.8	11.5	46.8	10.5	57.7	68°	07:47	09:12	11:27	11:26	11:31	11:35																					
	02	133° 52.5	160° 33.9	19.9	150° 17.7	52.7	293° 33.3	10.0	232° 48.2	53.8	Acru	173° 06.4	63° 11.2 S	208° 46.8	42.6	140° 38.3	11.6	36.3	10.6	66°	07:35	08:49	10:19	11:24	11:32	11:41																						
	03	148° 55.0	175° 33.8	18.8	165° 18.5	51.9	308° 35.5	10.1	247° 50.3	53.8	Adhara	255° 10.2	28° 59.9 S	223° 46.5	42.3	155° 08.9	11.5	25.7	10.6	64°	07:25	08:31	09:44	11:21	11:33	11:45																						
	04	163° 57.5	190° 33.8	17.7	180° 19.2	51.2	323° 37.8	10.2	262° 52.5	53.8	Aldebaran	290° 46.3	16° 32.4 N	238° 46.2	42.0	169° 39.4	11.5	15.1	10.7	62°	07:16	08:16	09:19	11:19	11:34	11:49																						
	05	178° 59.9	205° 33.8	16.6	195° 19.9	50.4	338° 40.0	10.2	277° 54.7	53.9				253° 45.9	41.8	184° 09.9	11.5	04.4	10.7	60°	07:08	08:04	08:59	11:17	11:35	11:53																						
	06	194° 02.4	220° 33.8	15.5	210° 20.6	49.7	353° 42.2	10.3	292° 56.8	53.9	Alioth	166° 18.7	55° 51.8 N	268° 45.6	41.5	198° 40.4	11.5	3° 53.7 S	10.7	57.8	N 58°	07:01	07:53	08:43	11:16	11:35	11:56																					
	07	209° 04.8	235° 33.7	14.3	225° 21.3	48.9	36° 44.5	10.4	307° 59.0	53.9	Alkaid	152° 57.2	49° 13.6 N	283° 45.4	41.2	213° 10.9	11.4	43.0	10.7	56°	06:55	07:43	08:30	11:14	11:36	11:59																						
	08	224° 07.3	250° 33.7	13.2	240° 22.1	48.1	23° 46.7	10.5	323° 01.1	53.9	Alnair	27° 41.1	46° 52.9 S	298° 45.1	41.0	227° 41.3	11.5	32.3	10.8	54°	06:49	07:35	08:18	11:13	11:37	12:02																						
	09	239° 09.8	265° 33.7	12.1	255° 22.8	47.4	38° 48.9	10.6	338° 03.3	53.9	Alnilam	275° 43.6	1° 11.7 S	313° 44.8	40.7	242° 11.8	11.4	21.5	10.7	52°	06:44	07:27	08:07	11:12	11:37	12:04																						
	10	254° 12.2	280° 33.7	11.0	270° 23.5	46.6	53° 51.2	10.6	353° 05.5	53.9	Alphard	217° 53.5	8° 44.0 S	328° 44.5	40.4	256° 42.2	11.5	10.8	10.8	57.9	50°	06:39	07:20	07:58	11:11	11:38	12:06																					
	11	269° 14.7	295° 33.7	09.8	285° 24.2	45.9	68° 53.4	10.7	8° 07.6	54.0				343° 44.2	40.2	271° 12.7	11.4	3° 00.0 S	10.9	45°	06:28	07:05	07:38	11:08	11:39	12:11																						
	12	284° 17.2	310° 33.6	12° 08.7 S	300° 25.0	7° 45.1 S	83° 55.6	7° 10.8 S	23° 09.8	21° 54.0 S	Alphecca	126° 09.2	26° 39.5 N	358° 43.9	22° 39.9 S	285° 43.1	11.4	2° 49.1 S	10.8	57.9	N 40°	06:18	06:52	07:22	11:06	11:40	12:15																					
	13	299° 19.6	325° 33.6	07.6	315° 25.7	44.3	98° 57.9	10.9	38° 11.9	54.0	Alpheratz	357° 41.0	29° 11.1 N	37° 43.7	39.6	300° 13.5	11.4	38.3	10.9	35°	06:09	06:41	07:09	11:04	11:41	12:18																						
	14	314° 22.1	340° 33.6	06.5	330° 26.4	43.6	114° 00.1	11.0	53° 14.1	54.0	Altair	62° 06.2	8° 54.9 N	28° 43.4	39.4	314° 43.9	11.3	27.4	10.9	58.0	30°	06:01	06:31	06:57	11:03	11:41	12:21																					
	15	329° 24.6	355° 33.6	05.3	345° 27.1	42.8	129° 02.4	11.1	68° 16.3	54.0	Ankaa	353° 13.5	42° 13.2 S	43° 43.1	39.1	329° 14.2	11.4	16.5	10.9	20°	05:45	06:12	06:36	11:00	11:43	12:27																						
	16	344° 27.0	10° 33.6	04.2	0° 27.8	42.1	144° 04.6	11.1	83° 18.4	54.1	Antares	112° 23.6	26° 27.9 S	58° 42.8	38.8	343° 44.6	11.3	05.6	11.0	N 10°	05:30	05:56	06:19	10:58	11:44	12:31																						
	17	359° 29.5	25° 33.6	03.1	15° 28.6	41.3	159° 06.8	11.2	98° 20.6	54.1				73° 42.5	38.5	358° 14.9	11.3	1° 54.6 S	10.9	0°	05:13	05:39	06:02	10:56	11:45	12:36																						
	18	14° 31.9	40° 33.5	01.9	30° 29.3	40.5	174° 09.1	11.3	113° 22.8	54.1	Arcturus	145° 53.7	19° 05.6 N	88° 42.3	38.3	12° 45.2	11.3	43.7	11.0	58.1	S 10°	04:55	05:22	05:45	10:53	11:46	12:40																					
	19	29° 34.4	55° 33.5	00.8	45° 30.0	39.8	189° 11.3	11.4	128° 24.9	54.1	Atria	107° 23.7	69° 03.1 S	103° 42.0	38.0	27° 15.5	11.3	32.7	11.0	20°	04:33	05:02	05:27	10:51	11:47	12:45																						
	20	44° 36.9	70° 33.5	11° 59.7 S	60° 30.7	39.0	204° 13.5	11.5	143° 27.1	54.1	Avior	234° 16.3	59° 33.9 S	118° 41.7	37.7	41° 45.8	11.3	21.7	11.0	30°	04:05	04:38	05:05	10:48	11:49	12:51																						
	21	59° 39.3	85° 33.5	58.6	75° 31.4	38.2	219° 15.8	11.5	158° 29.3	54.1	Bellatrix	278° 29.1	6° 21.7 N	133° 41.4	37.4	56° 16.1	11.2	10.7	11.1	35°	03:47	04:24	04:53	10:47	11:50	12:54																						
	22	74° 41.8	100° 33.5	57.4	90° 32.2	37.5	234° 18.0	11.6	173° 31.4	54.2	Betelgeuse	270° 58.4	7° 24.4 N	148° 41.1	37.1	70° 46.3	11.2	0° 59.6 S	11.0	58.2	40°	03:25	04:06	04:39	10:45	11:51	12:58																					
	23	89° 44.3	115° 33.5	56.3	105° 32.9	36.7	249° 20.2	11.7	188° 33.6	54.2				163° 40.9	36.9	85° 16.5	11.2	48.6	11.0	45°	02:56	03:45	04:21	10:43	11:52	13:02																						
	Thursday	00	104° 46.7	130° 33.5	11° 55.2 S	120° 33.6	7° 36.0 S	264° 22.5	7° 11.8 S	203° 35.7	21° 54.2 S	Canopus	263° 54.5	52° 42.5 S	178° 40.6	22° 36.6 S	99° 46.7	11.1	0° 37.6 S	11.1	58.2	S 50°	02:14	03:16	04:00	10:41	11:53	13:07																				
01		119° 49.2	145° 33.5	54.0	135° 34.3	35.2	279° 24.7	11.9	281° 37.9	54.2	Capella	280° 30.4	46° 00.7 N	193° 40.3	36.3	114° 16.8	11.2	26.5	11.1	52°	01:49	03:02	03:50	10:40	11:54	13:09																						
02		134° 51.7	160° 33.5	52.9	150° 35.1	34.4	294° 27.0	11.9	293° 40.1	54.2	Deneb	49° 30.2	45° 20.7 N	208° 40.0	36.0	128° 47.0	11.1	15.4	11.1	58.3	54°	01:13	02:46	03:38	10:38	11:54	13:12																					
03		149° 54.1	175° 33.5	51.8	165° 35.8	33.7	309° 29.2	12.0	248° 42.2	54.2	Denebola	182° 31.1	14° 28.5 N	223° 39.7	35.7	143° 17.1	11.1	04.3	11.1	56°	-	02:25	03:25	04:19	10:37	11:55	13:15																					
04		164° 56.6	190° 33.5	50.6	180° 36.5	32.9	324° 31.4	12.1	263° 44.4	54.3	Diphda	348° 53.5	17° 53.8 S	238° 39.5	35.5	157° 47.2	11.0	0° 06.8 N	11.1	58°	-	01:59	03:09	03:56	10:36	11:56	13:18																					
05		179° 59.1	205° 33.5	49.5	195° 37.2	32.2	339° 33.7	12.2	278° 46.6	54.3				253° 39.2	35.2	172° 17.2	11.0	17.9	11.1	S 60°	-	01:20	02:50	03:44	10:34	11:57	13:22																					
06		195° 01.5	220° 33.5	48.4	210° 37.9	31.4	354° 35.9	12.3	293° 48.7	54.3	Dubhe	193° 48.6	61° 39.3 N	268° 38.9	34.9	186° 47.2	11.0	29.0	11.1	58.4	S 62°	-	-	02:26	10:32	11:58	13:26																					
07		210° 04.0	235° 33.5	47.2	225° 38.7	30.6	9° 38.1	12.3	308° 50.9	54.3	Elmath	278° 09.2	28° 37.1 N	283° 38.6	34.6	201° 17.2	11.0	40.1	11.1																													
08		225° 06.4	250° 33.5	46.1	240° 39.4																																											

2017 January 7, 8, 9 (Sat, Sun, Mon)

GMT		ARIES			VENUS			-4.4			MARS			+0.9			JUPITER			-2.0			SATURN			+8.2			STARS						SUN				MOON						Lat	Twilight		Sunrise		7			Moonrise																			
		GHA			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			Name			SHA			Dec			GHA			Dec			GHA			v			Dec			d			HP			N 72°		08:14		10:18		-		11:13		8		10:52	
7	00	106° 45'0	130° 34'2	11° 00'5 S	121° 08'4	6° 59'3 S	266° 10'2	7° 15'5 S	205° 19'6	21° 55'0 S	220° 19'6	21° 55'0 S	Acamar	315° 16'4	40° 14'6 S	178° 27'4	22° 22'2 S	75° 13'8	9'1	8° 08'8 N	10'4	59'4	N 70°	07:57	09:36	-	-	11:29	11:30	11:36																																										
	01	121° 47'5	145° 34'3	10° 59'4 S	136° 09'1	58° 6'0	281° 12'4	15'6	232° 21'8	55'0	193° 27'1	21'9	89° 41'9	9'1	19'2	10'4	68°	07:44	09:07	11:08	11:41	11:50	12:05																																																	
	02	136° 49'9	160° 34'3	58'2	151° 09'8	57'8	296° 14'7	15'6	235° 24'0	55'1	208° 26'9	21'6	104° 10'0	9'1	29'6	10'4	66°	07:32	08:45	10:12	11:51	12:06	12:28																																																	
	03	151° 52'4	175° 34'3	57'1	166° 10'6	57'0	311° 16'9	15'7	250° 26'1	55'1	223° 26'6	21'2	118° 38'1	9'0	40'0	10'3	64°	07:22	08:28	09:39	12:00	12:19	12:45																																																	
	04	166° 54'9	190° 34'4	55'9	181° 11'3	56'3	326° 19'2	15'8	265° 28'3	55'1	250° 46'3	16° 32'4 N	238° 26'3	20'9	133° 06'1	8'9	50'3	10'3	62°	07:14	08:14	09:15	12:07	12:30	13:00																																															
	05	181° 57'3	205° 34'4	54'8	196° 12'0	55'5	341° 21'4	15'9	280° 30'5	55'1	253° 26'1	20'6	147° 34'0	8'9	9° 00'6 N	10'2	59'5	60°	07:06	08:02	08:57	12:14	12:39	13:12																																																
	06	196° 59'8	220° 34'5	53'6	211° 12'8	54'7	356° 23'7	15'9	295° 32'6	55'1	268° 25'8	20'3	162° 01'9	8'8	10'8	10'2	58°	07:00	07:51	08:41	12:20	12:48	13:23																																																	
	07	212° 02'3	235° 34'5	52'5	226° 13'5	54'0	11° 25'9	16'0	310° 34'8	55'1	283° 25'5	20'0	176° 29'7	8'8	21'0	10'1	56°	06:54	07:42	08:28	12:25	12:55	13:32																																																	
	08	227° 04'7	250° 34'5	51'3	241° 14'2	53'2	26° 28'2	16'1	325° 37'0	55'2	27° 41'1	46° 52'8 S	298° 25'3	19'6	190° 57'5	8'7	31'1	10'1	54°	06:4																																																				

2017 January 10, 11, 12 (Tue, Wed, Thur)

		ARIES			VENUS			-4.4			MARS			+1.0			JUPITER			-2.0			SATURN			+0.5			STARS			SUN			MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	08:09	10:07	-	-	-	12:15															
Tuesday	00	109° 42.4	130° 39.4	9° 37.1 S	122° 01.1	6° 04.0 S	268° 52.8	7° 20.6 S	207° 55.7	21° 56.2 S	Acamar	315° 16.4	40° 14.6 S	178° 08.6	21° 57.3 S	34° 26.1	5.0	17° 41.2 N	4.3	60.4				N 70°	07:53	09:28	-	11:51	12:35	14:02																
	01	124° 44.9	145° 39.6	36.1 S	137° 01.8	03° 03.0 S	233° 25.0	20.7	222° 57.9	56.2	Achernar	193° 08.4	57.0	48° 50.1	5.0	45.5	4.2							68°	07:40	09:01	10:51	12:33	13:24	14:42																
	02	139° 47.4	160° 39.7	34.9	152° 02.5	02.5	298° 57.4	20.8	238° 00.1	56.2	Acruz	173° 06.3	63° 11.3 S	208° 08.1	56.6	63° 14.1	4.9	49.7	4.1				66°	07:29	08:41	10:04	13:02	13:56	15:10																	
	03	154° 49.8	175° 39.8	33.8	167° 03.3	01.7	313° 59.6	20.8	255° 10.2	56.2	Adhara	255° 10.2	29° 00.0 S	223° 07.9	56.2	77° 38.0	4.9	53.8	4.0				64°	07:20	08:25	09:34	13:24	14:19	15:31																	
	04	169° 52.3	190° 39.9	32.6	182° 04.0	00.9	329° 01.9	20.9	268° 04.4	56.3	Aldebaran	290° 46.3	16° 32.4 N	238° 07.6	55.9	92° 01.9	4.9	57.8	3.8				62°	07:11	08:11	09:11	13:41	14:37	15:48																	
	05	184° 54.7	205° 40.0	31.4	197° 04.7	00.2	344° 04.2	21.0	283° 06.6	56.3				253° 07.4	55.5	106° 25.8	4.9	18° 01.8 N	3.8				60°	07:04	07:59	08:53	13:56	14:53	16:02																	
	06	199° 57.2	220° 40.1	30.3	212° 05.5	5° 59.4 S	359° 06.4	21.0	298° 07.7	56.1	Alioth	166° 18.6	55° 51.8 N	268° 07.1	55.1	120° 49.7	4.8	05.4	3.5				N 58°	06:58	07:49	08:38	14:08	15:06	16:14																	
	07	214° 59.7	235° 40.2	29.1	227° 06.2	58.6	14° 08.7	21.1	313° 10.9	56.3	Alkaid	152° 57.1	49° 13.5 N	283° 06.9	54.7	135° 13.5	4.8	08.9	3.5				56°	06:52	07:40	08:25	14:19	15:17	16:24																	
	08	230° 02.1	250° 40.3	27.9	242° 06.9	57.9	29° 11.0	21.2	328° 13.1	56.3	Alnair	27° 41.1	46° 52.8 S	298° 06.6	54.3	149° 37.3	4.7	12.4	3.3				54°	06:47	07:32	08:14	14:29	15:27	16:34																	
	09	245° 04.6	265° 40.5	26.8	257° 07.7	57.1	44° 13.3	21.2	343° 15.2	56.3	Alnilam	275° 43.6	1° 11.7 S	313° 06.4	54.0	164° 01.0	4.8	15.7	3.2				52°	06:42	07:25	08:04	14:37	15:35	16:42																	
	10	260° 07.1	280° 40.6	25.6	272° 08.4	56.3	59° 15.5	21.3	358° 17.4	56.4	Alphard	217° 53.4	8° 44.1 S	328° 06.1	53.6	178° 24.8	4.7	18.9	3.1				50°	06:37	07:18	07:55	14:45	15:43	16:49																	
	11	275° 09.5	295° 40.7	24.4	287° 09.1	55.6	74° 17.8	21.4	13° 19.6	56.4				343° 05.9	53.2	192° 48.5	4.7	22.0	3.0				45°	06:27	07:03	07:37	15:01	16:00	17:05																	
	12	290° 12.0	310° 40.8	9° 23.2 S	302° 09.9	5° 54.8 S	89° 20.1	7° 21.4 S	28° 21.8	21° 56.4 S	Alphecca	126° 09.2	26° 39.5 N	358° 05.6	21° 52.8 S	207° 12.2	4.6	18° 25.0 N	2.8	60.4			N 40°	06:18	06:51	07:21	15:15	16:14	17:18																	
	13	305° 14.5	325° 40.9	22.1	317° 10.6	54.0	104° 22.3	21.5	43° 23.9	56.4	Alpheratz	357° 41.1	29° 11.1 N	13° 05.4	52.4	221° 35.8	4.7	27.8	2.6				35°	06:09	06:41	07:08	15:26	16:26	17:29																	
	14	320° 16.9	340° 41.1	20.9	332° 11.4	53.2	119° 24.6	21.6	58° 26.1	56.4	Altair	62° 06.2	8° 54.9 N	28° 30.1	52.1	235° 59.5	4.6	30.4	2.6				30°	06:01	06:31	06:57	15:36	16:36	17:38																	
	15	335° 19.4	355° 41.2	19.7	347° 12.1	52.5	134° 26.9	21.6	73° 28.3	56.4	Ankaa	353° 13.5	42° 13.1 S	43° 04.9	51.7	250° 23.1	4.6	33.0	2.4				20°	05:47	06:14	06:37	15:53	16:53	17:55																	
	16	350° 21.0	10° 41.3	18.6	2° 12.8	51.7	149° 29.2	21.7	88° 30.4	56.4	Antares	112° 23.5	26° 27.9 S	58° 04.6	51.3	264° 46.7	4.6	35.4	2.3	60.3		N 10°	05:32	05:58	06:20	16:08	17:09	18:09																		
	17	5° 24.3	25° 41.4	17.4	17° 13.6	50.9	164° 31.4	21.7	103° 32.6	56.5				73° 04.4	50.9	279° 10.3	4.6	37.7	2.1				0°	05:16	05:42	06:04	16:22	17:23	18:23																	
	18	20° 26.8	40° 41.5	16.2	32° 14.3	50.2	179° 33.7	21.8	118° 34.8	56.5	Arcturus	145° 53.6	19° 05.6 N	88° 04.1	50.5	293° 33.9	4.6	39.8	2.1				S 10°	04:59	05:25	05:48	16:37	17:38	18:36																	
	19	35° 29.2	55° 41.7	15.1	47° 15.0	49.4	194° 36.0	21.9	133° 37.0	56.5	Atria	107° 23.6	69° 03.1 S	103° 03.9	50.1	307° 57.5	4.6	41.9	1.9				20°	04:38	05:06	05:31	16:52	17:53	18:51																	
	20	50° 31.7	70° 41.8	13.9	62° 15.8	48.6	209° 38.3	21.9	148° 39.1	56.5	Avior	234° 16.3	59° 33.9 S	118° 03.6	49.8	322° 21.1	4.5	43.8	1.7				30°	04:11	04:43	05:10	17:09	18:11	19:07																	
	21	65° 34.2	85° 41.9	12.7	77° 16.5	47.8	224° 40.5	22.0	163° 41.4	56.5	Bellatrix	278° 29.1	6° 21.6 N	133° 03.4	49.4	336° 44.6	4.6	45.5	1.6				35°	03:54	04:29	04:58	17:20	18:21	19:17																	
	22	80° 36.6	100° 42.1	11.5	92° 17.2	47.1	239° 42.8	22.1	178° 43.5	56.5	Betelgeuse	270° 58.4	7° 24.4 N	148° 03.1	49.0	351° 08.2	4.5	47.1	1.5				40°	03:32	04:13	04:45	17:31	18:33	19:28																	
	23	95° 39.1	115° 42.2	10.4	107° 18.0	46.3	254° 45.1	22.1	189° 45.6	56.6				163° 02.9	48.6	5° 31.7	4.6	48.6	1.3				45°	03:05	03:52	04:28	17:45	18:47	19:40																	
Wednesday	00	110° 41.6	130° 42.3	9° 09.2 S	122° 18.7	5° 45.5 S	269° 47.3	7° 22.2 S	208° 47.8	21° 56.6 S	Canopus	263° 54.5	52° 42.6 S	178° 02.6	21° 48.2 S	19° 55.3	4.5	18° 49.9 N	1.3	60.3		S 50°	02:26	03:25	04:08	18:02	19:04	19:56																		
	01	125° 44.0	145° 42.4	08.0	137° 19.5	44.7	284° 49.6	22.3	223° 50.0	56.6	Capella	280° 30.4	46° 00.7 N	193° 02.4	47.8	34° 18.8	4.6	51.2	1.0			52°	02:03	03:12	03:58	18:10	19:12	20:03																		
	02	140° 46.5	160° 42.6	06.9	152° 20.2	44.0	299° 51.9	22.3	49° 30.2	56.6	Deneb	49° 30.2	45° 20.6 N	208° 02.2	47.4	48° 42.4	4.5	52.2	1.0			54°	01:33	02:56	03:47	18:19	19:20	20:11																		
	03	155° 49.0	175° 42.7	05.7	167° 20.9	43.2	314° 54.2	22.4	253° 54.3	56.6	Denebola	182° 31.1	14° 28.5 N	223° 01.9	47.0	63° 05.9	4.5	53.2	0.8			56°	00:34	02:38	03:34	18:29	19:30	20:20																		
	04	170° 51.4	190° 42.8	04.5	182° 21.7	42.4	329° 56.5	22.5	268° 56.5	56.6	Diphda	348° 53.5	17° 53.8 S	238° 01.7	46.6	77° 29.4	4.6	54.0	0.7			58°	-	02:14	03:20	18:40	19:42	20:31																		
	05	185° 53.9	205° 43.0	03.3	197° 22.4	41.7	344° 58.7	22.5	283° 58.7	56.6				253° 01.4	46.2	91° 53.0	4.6	54.7	0.5			S 60°	-	01:42	03:02	18:53	19:55	20:42																		
	06	200° 56.4	220° 43.1	02.2	212° 23.2	40.9	0° 01.0	22.6	299° 00.8	56.7	Dubhe	193° 48.5	61° 39.3 N	268° 01.2	45.8	106° 16.6	4.5	55.2	0.4	60.2		S 62°	-	00:37	02:41	19:09	20:10	20:56																		
	07	215° 58.8	235° 43.3	01.0	227° 23.9	40.1	15° 03.3	22.7	314° 03.0	56.7	Elath	278° 09.2	28° 37.1 N	283° 00.9	45.5	120° 40.1	4.6	55.6	0.3					Lat	Sunset	Twilight	Moonset																			
	08	231° 01.3	250° 43.4	8° 59.8 S	242° 24.6	39.3	30° 05.6	22.7	329° 05.2	56.7	Eltanin	90° 45.5	51° 29.3 S	298° 00.7	45.1	135° 03.7	4.6	55.9	0.1					Nautical	Civil	10	11	12																		
	09	246° 03.7	265° 43.5	58.7	257° 25.4	38.6	45° 07.8	22.8	344° 07.4	56.7	Enif	33° 45.0	9° 57.3 N	313° 00.4	44.7	149° 27.3	4.6	56.0	0.0																											
	10	261°																																												

2017 January 13, 14, 15 (Fri, Sat, Sun)

GMT		ARIES		VENUS		-4.4		MARS		+1.0		JUPITER		-2.0		SATURN		+0.5		STARS				SUN				MOON				Lat	Twilight		Sunrise		Moonrise												
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil		13		Moonrise	
13	00	112° 39.9	130° 49.7	8° 12'8 S	122° 54.2	5° 08.4 S	271° 36.8	7° 25'2 S	210° 32.1	21° 57.3 S	Acamar	315° 16.4	40° 14.6 S	177° 51.1	21° 28'6 S	351° 12.2	6.2	17° 20.2 N	4.9	59.5	5	N 70°	07:47	09:20	-	15:08	17:44	19:08																					
	01	127° 42.3	145° 49.9	11.6	137° 55.0	07.6	286° 39.1	25.2	225° 33.5	57.3	Achernar	335° 25.7	57° 09.5 S	192° 50.9	28.2	5° 37.4	6.3	15.3	5.0	59.4	68°	07:35	08:55	10:37	16:17	17:56	19:33																						
	02	142° 44.8	160° 50.1	10.4	152° 55.7	06.9	301° 41.4	25.3	240° 36.5	57.3	Acruz	173° 06.2	63° 11.3 N	207° 50.7	27.8	20° 02.7	6.4	10.3	5.1		66°	07:25	08:36	09:55	16:38	18:10	19:42																						
	03	157° 47.2	175° 50.3	09.2	167° 56.5	06.1	316° 43.7	25.4	255° 38.7	57.3	Adhara	255° 10.2	29° 00.0 S	222° 50.4	27.4	34° 28.1	6.5	05.2	5.2		64°	07:16	08:20	09:27	16:54	18:22	19:49																						
	04	172° 49.7	190° 50.5	08.0	182° 57.2	05.3	331° 46.0	25.4	270° 40.8	57.4	Aldebaran	290° 46.3	16° 32.4 N	237° 50.2	26.9	48° 53.6	6.5	00.0	5.3		62°	07:08	08:07	09:06	17:08	18:32	19:56																						
	05	187° 52.2	205° 50.7	06.9	197° 58.0	04.5	346° 48.3	25.5	285° 43.0	57.4				252° 50.0	26.5	63° 19.1	6.6	16° 54.7 N	5.4	59.3	60°	07:02	07:56	08:49	17:20	18:41	20:01																						
	06	202° 54.6	220° 50.8	05.7	212° 58.7	03.8	1° 50.6	25.5	300° 45.2	57.4	Alioth	166° 18.6	55° 51.8 N	267° 49.7	26.1	77° 44.7	6.7	49.3	5.5		N 58°	06:56	07:46	08:34	17:30	18:48	20:06																						
	07	217° 57.1	235° 51.0	04.5	227° 59.4	03.0	16° 52.9	25.6	315° 47.4	57.4	Alkaid	152° 57.1	49° 13.5 N	282° 49.5	25.6	92° 10.4	6.7	43.8	5.6		56°	06:50	07:37	08:22	17:38	18:55	20:10																						
	08	232° 59.6	250° 51.2	03.3	243° 00.2	02.2	31° 55																																										

2017 January 16, 17, 18 (Mon, Tue, Wed)

	GMT	ARIES		VENUS		-4.5	MARS		+1.0	JUPITER		-2.0	SATURN		+0.5	STARS			SUN		MOON					Lat	Twilight		Sunrise	16		Moonrise		18
		Nautical	Civil																															
Monday		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	07:55	09:42	-	20:54	22:35	24:13			
	00	115° 37.3	131° 05.2	6° 47.4 S	123° 47.9	4° 12.5 S	274° 22.3	7° 29.2 S	213° 08.9	21° 58.3 S	Acamar	315° 16.4	40° 14.6 S	177° 35.1	20° 56.2 S	312° 45.7	11.8	7° 59.7 N	9.8	57.1	N 70°	07:41	09:11	11:37	21:00	22:35	24:07							
	01	130° 39.7	146° 05.5	46.2	138° 48.7	11.8	289° 24.6	29.2	228° 11.1	58.3	Achernar	335° 25.1	57° 09.5 S	192° 34.9	55.7	327° 16.5	11.8	49.9	9.7	57.0	68°	07:30	08:48	10:22	21:06	22:35	24:02							
	02	145° 42.2	161° 05.7	45.1	153° 49.4	11.0	304° 26.9	29.3	243° 13.3	58.3	Acruz	173° 06.2	63° 11.3 S	207° 34.6	55.2	341° 47.3	11.9	40.2	9.8	66°	07:20	08:30	09:46	21:10	22:35	23:58								
	03	160° 44.7	176° 06.0	43.9	168° 50.2	10.2	319° 29.2	29.3	258° 15.5	58.3	Adhara	255° 10.2	29° 00.0 S	222° 34.4	54.8	356° 18.2	11.9	30.4	9.9	64°	07:12	08:15	09:20	21:14	22:35	23:54								
	04	175° 47.1	191° 06.2	42.7	183° 50.9	09.4	334° 31.5	29.4	273° 17.6	58.4	Aldebaran	290° 46.3	16° 32.4 N	237° 34.2	54.3	10° 49.1	12.0	20.5	9.8	56.9	62°	07:05	08:03	09:00	21:17	22:35	23:52							
	05	190° 49.6	206° 06.5	41.5	198° 51.7	08.7	349° 33.8	29.4	288° 19.8	58.4				252° 34.0	53.8	25° 20.1	12.1	10.7	9.9	60°	06:58	07:52	08:44	21:20	22:35	23:49								
	06	205° 52.1	221° 06.8	40.3	213° 52.4	07.9	4° 36.1	29.5	303° 22.0	58.4	Alioth	166° 18.5	55° 51.8 N	267° 33.8	53.3	39° 51.2	12.1	00.8	9.9	N 58°	06:53	07:43	08:30	21:22	22:35	23:47								
	07	220° 54.5	236° 07.0	39.1	228° 53.2	07.1	19° 38.4	29.5	318° 24.2	58.4	Alkaid	152° 57.1	49° 13.5 N	282° 33.6	52.9	54° 22.3	12.2	6° 50.9 N	9.9	56.8	56°	06:47	07:34	08:19	21:24	22:35	23:45							
	08	235°																																

2017 January 19, 20, 21 (Thur, Fri, Sat)

	GMT	ARIES	VENUS	-4.5	MARS	+1.0	JUPITER	-2.1	SATURN	+0.6	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		19	20	21
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil						
Thurs day	19 00	118° 34'7	131° 26'0	5° 21'6 S	124° 42'0	3° 16'5 S	277° 09'1	7° 32'5 S	215° 46'1	21° 59'2 S	Acamar	315° 16'4	40° 14'6 S	177° 20'5	20° 20'2 S	279° 45'5	14'6	3° 59'1 S	9'6	54'9				-	00:13	01:50	03:28		
	01	133° 37'1	146° 26'4	20'4	139° 42'8	15'7	292° 11'5	32'6	230° 48'3	59'3	Achernar	335° 25'1	57° 09'5 S	192° 20'3	19'6	294° 19'1	14'7	4° 08'7 S	9'6		68°	07:24	08:40	10:09	00:02	01:27	02:52		
	02	148° 39'6	161° 26'7	19'3	154° 43'5	14'9	307° 13'8	32'6	245° 50'5	59'3	Acruar	173° 06'2	63° 11'3 S	207° 20'1	19'1	308° 52'8	14'6	18'3	9'5		66°	07:15	08:23	09:36	-	01:19	02:39		
	03	163° 42'1	176° 27'0	18'1	169° 44'3	14'2	322° 16'1	32'7	260° 52'7	59'3	Adhara	255° 10'2	29° 00'0 S	222° 19'9	18'6	323° 26'4	14'7	27'8	9'5		64°	07:07	08:10	09:13	-	01:12	02:28		
	04	178° 44'5	191° 27'3	16'9	184° 45'0	13'4	337° 18'4	32'7	275° 54'8	59'3	Aldebaran	290° 46'3	16° 32'4 N	237° 19'7	18'1	338° 00'1	14'6	37'3	9'5		62°	07:01	07:58	08:54	-	01:06	02:19		
	05	193° 47'0	206° 27'7	15'7	199° 45'8	12'6	352° 20'8	32'7	290° 57'0	59'3				252° 19'6	17'5	352° 33'7	14'7	46'8	9'5	54'8	60°	06:55	07:48	08:39	-	01:01	02:11		
	06	208° 49'5	221° 28'0	14'5	214° 46'5	11'8	7° 23'1	32'8	305° 59'2	59'3	Alioth	166° 18'5	55° 51'8 N	267° 19'4	17'0	7° 07'4	14'7	56'3	9'5		N 58°	06:49	07:39	08:26	-	00:56	02:04		
	07	223° 51'9	236° 28'3	13'3	229° 47'3	11'1	22° 25'4	32'8	321° 01'4	59'3	Alkaid	152° 57'0	49° 13'5 N	282° 19'2	16'5	21° 41'1	14'7	5° 05'8 S	9'4		56°	06:44	07:31	08:15	-	00:52	01:59		
	08	238° 54'4	251° 28'7	12'1	244° 48'0	10'3	37° 27'8	32'9	336° 03'6	59'3	Alnair	27° 41'2	46° 52'8 S	297° 19'0	15'9	36° 14'8	14'7	15'2	9'4		54°	06:40	07:24	08:05	-	00:49	01:53		
	09	253° 56'9	266° 29'0	10'9	259° 48'8	09'5	52° 30'1	32'9	351° 05'8	59'4	Alnilam	275° 43'6	1° 11'8 S	312° 18'8	15'4	50° 48'5	14'7	24'6	9'3		52°	06:36	07:18	07:56	-	00:45	01:48		
	10	268° 59'3	281° 29'3	09'7	274° 49'6	08'7	67° 32'4	33'0	6° 08'0	59'4	Alphard	217° 53'4	8° 44'1 S	327° 18'6	14'9	65° 22'2	14'7	33'9	9'4	54'7	50°	06:32	07:12	07:48	-	00:42	01:44		
	11	284° 01'8	296° 29'7	08'5	289° 50'3	07'9	82° 34'8	33'0	21° 10'2	59'4				342° 18'4	14'4	79° 55'9	14'7	43'3	9'3		45°	06:23	06:59	07:31	-	00:36	01:35		
	12	299° 04'3	311° 30'0	5° 07'2 S	304° 51'1	3° 07'2 S	97° 37'1	7° 33'0 S	36° 12'3	21° 59'4 S	Alphecca	126° 09'1	26° 39'4 N	357° 18'2	20° 13'8 S	94° 29'6	14'7	5° 52'6 S	9'2	54'7	N 40°	06:15	06:48	07:18	-	00:31	01:27		
	13	314° 06'7	326° 30'4	06'1	319° 51'8	06'4	112° 39'4	33'1	51° 14'5	59'4	Alpheratz	357° 41'1	29° 11'1 N	12° 18'0	13'3	109° 03'3	14'7	6° 01'8 S	9'3		35°	06:08	06:39	07:06	-	00:26	01:20		
	14	329° 09'2	341° 30'7	04'9	334° 52'6	05'6	127° 41'7	33'1	66° 16'7	59'4	Altair	62° 06'2	8° 54'9 N	27° 17'9	12'8	123° 37'0	14'7	11'1	9'2		30°	06:01	06:30	06:56	-	00:22	01:14		
	15	344° 11'6	356° 31'0	03'7	349° 53'3	04'8	142° 44'1	33'2	81° 18'9	59'4	Ankaa	353° 13'5	42° 13'1 S	42° 17'7	12'2	138° 10'7	14'7	20'3	9'2	54'6	20°	05:47	06:14	06:38	-	00:15	01:04		
	16	359° 14'1	11° 31'4	02'6	4° 54'1	04'0	157° 46'4	33'2	96° 21'1	59'4	Antares	112° 23'5	26° 27'9 S	57° 17'5	11'7	152° 44'4	14'8	29'5	9'1		N 10°	05:34	06:00	06:22	-	00:09	00:55		
	17	14° 16'6	26° 31'7	01'4	19° 54'8	03'3	172° 48'7	33'2	111° 23'3	59'5				72° 17'3	11'1	167° 18'2	14'7	38'6	9'1		0°</								

2017 January 22, 23, 24 (Sun, Mon, Tue)

	GMT	ARIES	VENUS	-4.5	MARS	+1.1	JUPITER	-2.1	SATURN	+0.6	STARS			SUN		MOON				Lat	Twilight		Sunrise	Moonrise			
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		22	23	24
Sunday	00	121° 32.1	131° 52.3	3° 55' 58.8 S	125° 36.5	2° 20.4 S	279° 57.5	7° 35.3 S	218° 23.7	22° 00.1 S	Acamar	315° 16.4	40° 14.6 S	177° 07.5	19° 40.7 S	247° 55.3	13.8	13° 56.9 S	6.6	54.2	N 70°	07:27	08:51	10:39	04:39	06:10	07:36
	01	136° 34.6	146° 52.7	54.6	140° 37.2	19.6	294° 59.8	35.4	233° 25.9	00.1	Achernar	335° 25.1	57° 09.5 S	192° 07.4	40.1	262° 28.1	13.8	14° 03.5 S	6.5	68°	07:17	08:32	09:55	04:15	05:37	06:52	
	02	151° 37.0	161° 53.1	53.4	155° 38.0	18.8	310° 02.2	35.4	248° 28.1	00.1	Acruz	173° 06.1	63° 11.3 S	207° 07.2	39.5	277° 00.9	13.7	10.0	6.4	66°	07:09	08:16	09:27	03:57	05:13	06:23	
	03	166° 39.5	176° 53.6	52.2	170° 38.7	18.0	325° 04.5	35.4	263° 30.3	00.1	Adhara	255° 10.2	29° 00.0 S	222° 07.0	39.0	291° 33.6	13.7	16.4	6.4	64°	07:02	08:03	09:05	03:43	04:54	06:01	
	04	181° 42.0	191° 54.0	51.0	185° 39.5	17.3	340° 06.9	35.5	278° 32.5	00.2	Aldebaran	290° 46.3	16° 32.4 N	237° 06.9	38.4	306° 06.3	13.7	22.8	6.3	62°	06:56	07:52	08:47	03:30	04:39	05:43	
	05	196° 44.4	206° 54.4	49.8	200° 40.3	16.5	355° 09.2	35.5	293° 34.7	00.2										60°	06:51	07:43	08:33	03:20	04:26	05:28	
	06	211° 46.9	221° 54.8	48.6	215° 41.0	15.7	10° 11.6	35.5	308° 36.9	00.2	Alioth	166° 18.5	55° 51.8 N	267° 06.5	37.2	335° 11.6	13.6	35.3	6.2	N 58°	06:46	07:35	08:21	03:11	04:15	05:16	
	07	226° 49.3	236° 55.2	47.4	230° 41.8	14.9	25° 13.9	35.6	323° 39.1	00.2	Alkaid	152° 57.0	49° 13.5 N	282° 06.4	36.7	349° 44.2	13.6	41.5	6.1	56°	06:41	07:27	08:10	03:03	04:06	05:05	
	08	241° 51.8	251° 55.6	46.2	245° 42.5	14.1	40° 16.3	35.6	338° 41.3	00.2	Alnair	27° 41.2	46° 52.8 S	297° 06.2	36.1	4° 16.8	13.5	47.6	6.1	54°	06:37	07:21	08:01	02:56	03:57	04:56	
	09	256° 54.3	266° 56.0	45.0	260° 43.3	13.4	55° 18.6	35.6	353° 43.4	00.2	Alnilam	275° 43.6	1° 11.8 S	312° 06.0	35.5	18° 49.3	13.5	53.7	6.0	52°	06:33	07:15	07:52	02:50	03:50	04:47	
10	271° 56.7	281° 56.4	43.8	275° 44.1	12.6	70° 21.0	35.7	8° 45.6	00.2	Alphard	217° 53.4	8° 44.1 S	327° 05.9	34.9	33° 21.8	13.5	59.7	5.9	50°	06:29	07:09	07:45	02:44	03:43	04:40		
Monday	00	286° 59.2	296° 56.9	42.7	290° 44.8	11.8	85° 23.3	35.7	23° 47.8	00.2										45°	06:21	06:57	07:29	02:32	03:29	04:24	
	12	302° 01.7	311° 57.3	3° 41' 5.5 S	305° 45.6	2° 11' 0.5 S	100° 25.7	7° 35' 7.5 S	38° 50.0	22° 00' 2.5 S	Alphecca	126° 09.1	26° 39.4 N	357° 05.6	19° 33' 8.5 S	62° 26.7	13.4	15° 11' 4.5 S	5.8	54.2	N 40°	06:14	06:46	07:16	02:22	03:17	04:10
	13	317° 04.1	326° 57.7	40.3	320° 46.3	10.2	115° 28.0	35.8	53° 52.2	00.3	Alpheratz	357° 41.1	29° 11.1 N	12° 05.4	33.2	76° 59.1	13.4	17.2	5.8	35°	06:07	06:37	07:04	02:14	03:07	03:59	
	14	332° 06.6	341° 58.1	39.1	335° 47.1	09.5	130° 30.4	35.8	68° 54.4	00.3	Altair	62° 06.2	8° 54.9 N	27° 05.2	32.6	91° 31.5	13.3	23.0	5.6	30°	06:00	06:29	06:55	02:06	02:58	03:49	
	15	347° 09.1	356° 58.5	37.9	350° 47.9	08.7	145° 32.7	35.8	83° 56.6	00.3	Ankaa	353° 13.6	42° 13.1 S	42° 05.1	32.0	106° 03.8	13.4	28.6	5.6	20°	05:47	06:14	06:37	01:53	02:43	03:33	
	16	2° 11.5	11° 59.0	36.7	5° 48.6	07.9	160° 35.1	35.9	98° 58.8	00.3	Antares	112° 23.5	26° 27.9 S	57° 04.9	31.4	120° 36.2	13.2	34.2	5.6	N 10°	05:35	06:00	06:22	01:42	02:29	03:18	
	17	17° 14.0	26° 59.4	35.5	20° 49.4	07.1	175° 37.4	35.9	114° 01.0	00.3										0°	05:21	05:46	06:08	01:31	02:17	03:04	
	18	32° 16.5	41° 59.8	34.3	35° 50.1	06.3	190° 39.8	35.9	129° 03.2	00.3	Arcturus	145° 53.5	19° 05.6 N	87° 04.6	30.3	149° 40.7	13.2	45.2	5.4	S 10°	05:05	05:32	05:54	01:21	02:05	02:51	
	19	47° 18.9	57° 00.2	33.1	50° 50.9	05.6	205° 42.2	36.0	144° 05.4	00.3	Atria	107° 23.4	69° 03.0 S	102° 04.2	29.7	164° 12.9	13.1	50.6	5.4	20°	04:47						

2017 January 25, 26, 27 (Wed, Thur, Fri)

[illegible]

2017 January 28, 29, 30 (Sat, Sun, Mon)

GMT	ARIES			VENUS			MARS			JUPITER			SATURN			STARS			SUN			MOON					Lat	Twilight		Sunrise	Moonrise		
	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	28	28	30								
S a t u r d a y	00	127° 26'9	133° 02'7	1° 05'3 S	127° 26'3	0° 28'1 S	285° 38'8	7° 39'1 S	223° 40'4	22° 01'6 S	Acamar	315° 16'5	40° 14'6 S	176° 46'8	18° 12'0 S	177° 26'5	10'5	16° 03'3 S	5'7	56'3	N 70°	07:10	08:30	10:01	09:43	09:45	09:45						
	01	142° 29'4	148° 03'3	04'1	142° 27'0	27° 28'3	300° 41'2	39'1	238° 42'6	01'6	Achernar	335° 25'2	57° 09'4 S	191° 46'7	11'3	191° 56'0	10'4	15° 57'6 S	5'8	68°	N 70°	07:10	08:30	10:01	09:43	09:45	09:45						
	02	157° 31'9	163° 03'8	03'0	157° 27'8	26'5	315° 43'6	39'1	253° 44'8	01'6	Acruz	173° 06'0	63° 11'3 S	206° 46'6	10'7	206° 25'4	10'5	51'8	5'9	66°	N 70°	07:10	08:30	10:01	09:43	09:45	09:45						
	03	172° 34'3	178° 04'4	01'8	172° 28'5	25'8	330° 45'9	39'1	268° 47'0	01'6	Adhara	255° 10'2	29° 00'0 S	221° 46'4	10'0	220° 54'9	10'5	45'9	5'9	64°	N 70°	07:10	08:30	10:01	09:43	09:45	09:45						
	04	187° 36'8	193° 05'0	00'6	187° 29'3	25'0	345° 48'3	39'1	283° 49'2	01'6	Aldebaran	290° 46'4	16° 32'4 N	236° 46'3	09'3	235° 24'4	10'5	40'0	6'1	56'4	N 70°	07:10	08:30	10:01	09:43	09:45	09:45						
	05	202° 39'3	208° 05'6	0° 59'4 S	202° 30'1	24'2	0° 50'7	39'2	298° 51'4	01'7				251° 46'2	08'7	249° 53'9	10'6	33'9	6'1	60°	N 70°	07:10	08:30	10:01	09:43	09:45	09:45						
	06	217° 41'7	223° 06'2	58'3	217° 30'8	23'4	15° 53'1	39'2	313° 53'6	01'7	Alioth	166° 18'4	55° 51'8 N	266° 46'1	08'0	264° 23'5	10'5	27'8	6'2		N 58°	06:37	07:25	08:10	08:11	08:39	09:02						
	07	232° 44'2	238° 06'7	57'1	232° 31'6	22'7	30° 55'5	39'2	328° 55'8	01'7	Alkaid	152° 56'9	49° 13'5 N	281° 46'0	07'4	278° 53'0	10'5	21'6	6'3		N 58°	06:37	07:25	08:10	08:11	08:39	09:02						
	08	247° 46'6	255° 07'3	55'9	247° 32'4	21'9	45° 57'9	39'2	343° 58'0	01'7	Aln																						

	GMT	ARIES	VENUS	-4.6	MARS	+1.1	JUPITER	-2.2	SATURN	+0.6	STARS			SUN		MOON					Lat	Twilight		Sunrise	31	Moonrise	
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	07:09	08:37	10:25	09:50	09:44	09:37
Tuesday	00	130° 24.3	133° 47.6	0° 18.4 N	128° 21.5	0° 27.9 N	288° 31.8	7° 40.0 S	226° 19.5	22° 02.2 S	Acamar	315° 16.5	40° 14.6 S	176° 39.1	17° 23.1 S	141° 12.7	11.1	6° 03.4 S	10.4	57.8	N 70°	07:01	08:19	09:44	09:44	09:44	09:43
	01	145° 26.8	148° 48.2	19.6	143° 22.2	28.6	303° 34.2	40.0	241° 21.7	02.3	Achernar	335° 25.2	57° 09.4 S	191° 39.0	22.4	155° 42.8	11.1	5° 53.0 S	10.4	68°	06:54	08:04	09:16	09:39	09:44	09:48	
	02	160° 29.3	163° 48.9	20.7	158° 23.0	29.4	318° 36.6	40.0	256° 23.9	02.3	Acruz	173° 06.0	63° 11.4 S	206° 38.9	21.7	170° 12.9	11.2	42.6	10.5	66°	06:49	07:53	08:56	09:35	09:43	09:52	
	03	175° 31.7	178° 49.6	21.9	173° 23.8	30.2	333° 39.0	40.0	271° 26.1	02.3	Adhara	255° 10.2	29° 00.1 S	221° 38.8	21.0	184° 43.1	11.1	32.1	10.5	64°	06:44	07:42	08:39	09:32	09:43	09:55	
	04	190° 34.2	193° 50.3	23.1	188° 24.5	31.0	348° 41.4	40.0	286° 28.3	02.3	Aldebaran	290° 46.4	16° 32.4 N	236° 38.7	20.3	199° 13.2	11.1	21.6	10.6	62°	06:39	07:34	08:25	09:28	09:43	09:59	
	05	205° 36.7	208° 50.9	24.2	203° 25.3	31.8	3° 43.8	40.0	301° 30.6	02.3				251° 38.6	19.6	213° 43.3	11.1	11.0	10.6	57.9	60°	06:35	07:26	08:13	09:26	09:43	10:01
	06	220° 39.1	223° 51.6	25.4	218° 26.1	32.5	18° 46.3	40.0	316° 32.8	02.3	Alioth	166° 18.4	55° 51.8 N	266° 38.6	18.9	228° 13.4	11.1	00.4	10.6	N 58°	06:32	07:19	08:03	09:23	09:43	10:04	
	07	235° 41.6	238° 52.3	26.5	233° 26.9	33.3	33° 48.7	40.0	331° 35.0	02.3	Alkaid	152° 56.9	49° 13.5 N	281° 38.5	18.2	242° 43.5	11.1	4° 49.8 S	10.7	56°	06:29	07:13	07:55	09:21	09:43	10:06	
	08	250° 44.1	253° 53.0	27.7	248° 27.6	34.1	48° 51.1	40.1	346° 37.2	02.3	Alnair	27° 41.2	46° 52.8 S	296° 38.4	17.5	257° 13.6	11.2	39.1	10.7	54°	06						

2017 February 3, 4, 5 (Fri, Sat, Sun)

GMT		ARIES	VENUS	-4.6	MARS	+1.1	JUPITER	-2.2	SATURN	+0.6	STARS			SUN		MOON					Lat	Twilight		Sunrise		Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		3	4	5	
Friday	00	133° 21'8	134° 39'7	1° 40'6 N	129° 16'9	1° 23'6 N	291° 26'4	7° 40'3 S	228° 59'2	22° 02'8 S	Acamar	315° 16'5	40° 14'6 S	176° 33'3	16° 31'5 S	104° 55'4	9'9	7° 02'0 N	10'5	58'9	N 70°	06:51	08:08	09:28	09:43	09:44	09:48	
	01	148° 24'2	149° 40'4	41'7	144° 17'6	24'4	306° 28'8	40'3	244° 01'4	02'8	Achernar	335° 25'2	57° 09'4 S	191° 33'2	30'8	119° 24'3	9'8	12'5	10'5	68°	N 68°	06:46	07:55	09:04	09:53	10:01	10:13	
	02	163° 26'7	164° 41'2	42'9	159° 18'4	25'2	321° 31'2	40'3	259° 03'6	02'8	Acru	173° 06'0	63° 11'4 S	206° 33'2	30'0	133° 53'1	9'8	23'0	10'4	66°	N 66°	06:41	07:44	08:45	10:02	10:15	10:33	
	03	178° 29'2	179° 42'0	44'0	174° 19'2	26'0	336° 33'7	40'3	274° 05'8	02'8	Adhara	255° 10'2	29° 00'1 S	221° 33'1	29'3	148° 21'9	9'8	33'4	10'4	64°	N 64°	06:37	07:35	08:30	10:09	10:26	10:48	
	04	193° 31'6	194° 42'8	45'1	189° 20'0	26'7	351° 36'1	40'3	289° 08'1	02'9	Aldebaran	290° 46'4	16° 32'4 N	236° 33'0	28'6	162° 50'7	9'7	43'8	10'4	62°	N 62°	06:33	07:27	08:17	10:15	10:36	11:02	
	05	208° 34'1	209° 43'6	46'2	204° 20'7	27'5	6° 38'5	40'3	304° 10'3	02'9		6° 38'5		251° 33'0	27'8	177° 19'4	9'7	54'2	10'3	60°	N 60°	06:30	07:20	08:06	10:21	10:44	11:13	
	06	223° 36'5	224° 44'4	47'4	219° 21'5	28'3	21° 41'0	40'3	319° 12'5	02'9	Alioth	166° 18'3	55° 51'8 N	266° 32'9	27'1	191° 48'1	9'7	8° 04'5 N	10'3	58°	N 58°	06:26	07:14	07:57	10:26	10:51	11:23	
	07	238° 39'0	239° 45'1	48'5	234° 22'3	29'1	36° 43'4	40'3	334° 14'7	02'9	Alkaid	152° 56'9	49° 13'5 N	281° 32'8	26'3	206° 16'8	9'6	14'8	10'2	56°	N 56°	06:24	07:08	07:49	10:30	10:58	11:31	
	08	253° 41'5	254° 45'9	49'6	249° 23'0	29'8	51° 45'9	40'3	349° 17'0	02'9	Alnair	27° 41'2	46° 52'8 S	296° 32'8	25'6	220° 45'4	9'5	25'0	10'2	59'0	N 54°	06:21	07:03	07:41	10:34	11:04	11:39	
	09	268° 43'9	269° 46'7	50'7	264° 23'8	30'6	66° 48'3	40'3	4° 19'2	02'9	Alnilam	275° 43'7	1° 11'8 S	311° 32'7	24'9	235° 13'9	9'6	35'2	10'1	52°	N 52°	06:18	06:59	07:35	10:37	11:09	11:46	
	10	283° 46'4	284° 47'5	51'9	279° 24'6	31'4	81° 50'7	40'3	19° 21'4	02'9	Alphard	217° 53'3	8° 44'1 S	326° 32'6	24'1	249° 42'5	9'4	45'3	10'1	50°	N 50°	06:16	06:54	07:29	10:41	11:14	11:52	
	11	298° 48'9	299° 48'3	53'0	294° 25'3	32'1	96° 53'2	40'3	34° 23'6	02'9		34° 23'6		341° 32'6	23'4	264° 10'9	9'5	55'4	10'1	45°	N 45°	06:10	06:45	07:16	10:48	11:24	12:05	
Saturday	12	313° 51'3	314° 49'1	1° 54'1 N	309° 26'1	1° 32'9 N	111° 55'6	7° 40'3 S	49° 25'8	22° 02'9 S	Alphecca	126° 09'0	26° 39'4 N	356° 32'5	16° 22'6 S	278° 39'4	9'4	9° 05'5 N	10'0	59'0	N 40°	06:05	06:37	07:05	10:54	11:33	12:16	
	13	328° 53'8	329° 49'9	55'2	324° 26'9	33'7	126° 58'1	40'3	64° 28'1	02'9	Alpheratz	357° 41'1	29° 11'1 N	11° 32'5	21'9	293° 07'8	9'3	15'5	9'9									

2017 February 6, 7, 8 (Mon, Tue, Wed)

		ARIES		VENUS		-4.6		MARS		+1.2		JUPITER		-2.2		SATURN		+0.6		STARS			SUN		MOON					Lat	Twilight		Sunrise		Moonrise																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
				GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N		Nautical		Civil		6		Moonrise																																																																																																																																																																																																																																																																																																																																																																																																																																																																																												
Monday	00	136° 19'.2	135° 39'.8	3° 00'.7 N	130° 12'.4	2° 19'.1 N	294° 22'.5	7° 40'.0 S	231° 39'.5	22° 03'.3 S	Acamar	315° 16'.5	40° 14'.6 S	176° 29'.4	15° 37'.3 S	65° 38'.6	6'.6	16° 59'.4 N	5'.1	59'.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

2017 February 9, 10, 11 (Thur, Fri, Sat)

	GMT	ARIES			VENUS			-4.6			MARS			+1.2			JUPITER			-2.2			SATURN			+0.6			STARS			SUN			MOON					Lat	Twilight		Sunrise	Moonrise			9	11		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	06:34	07:57	09:22	12:14	14:26	16:24																			
Thurs day	00	139° 16' 6"	136° 48' 7"	4° 18' 2" N	131° 08' 0"	3° 14' 3" N	297° 20' 3"	7° 39' 0" S	234° 20' 4"	22° 03' 8" S	249° 22' 6"	03' 8" S	Acamar	315° 16' 5"	40° 14' 6" S	176° 27' 3"	14° 40' 7" S	23° 40' 6"	6' 5"	17° 58' 5" N	3' 6"	59' 1"	N 70°	06:31	07:44	08:57	13:09	14:57	16:43																					
	01	154° 19' 1"	151° 49' 7"	19' 2"	146° 08' 8"	15' 0"	312° 22' 8"	39' 0"	249° 22' 6"	03' 8" S			Achernar	335° 25' 3"	57° 09' 4" S	191° 27' 3"	39' 9"	38° 06' 1"	6' 5"	54° 9"	3' 8"	59' 0"	68°	06:27	07:34	08:38	13:43	15:19	16:57																					
	02	169° 21' 5"	166° 50' 7"	20' 3"	161° 09' 6"	15' 8"	327° 25' 3"	39' 0"	264° 24' 9"	03' 8" S			Acruax	173° 05' 9"	63° 11' 4" S	206° 27' 2"	39' 1"	52° 31' 6"	6' 6"	51' 1"	3' 8"	66°	06:24	07:25	08:23	14:07	15:37	17:09																						
	03	184° 24' 0"	181° 51' 8"	21' 3"	176° 10' 4"	16' 6"	342° 27' 8"	39' 0"	279° 27' 1"	03' 8" S			Adhara	255° 10' 3"	29° 00' 1" S	221° 27' 2"	38' 3"	66° 57' 2"	6' 6"	47' 3"	4' 0"	64°	06:22	07:18	08:11	14:26	15:51	17:18																						
	04	199° 26' 5"	196° 52' 8"	22' 4"	191° 11' 1"	17' 3"	357° 30' 3"	39' 0"	294° 29' 3"	03' 8" S			Aldebaran	290° 46' 4"	16° 32' 4" N	236° 27' 2"	37' 5"	81° 22' 8"	6' 6"	43' 3"	4' 1"	62°	06:19	07:12	08:00	14:41	16:03	17:26																						
	05	214° 28' 9"	211° 53' 8"	23' 4"	206° 11' 9"	18' 1"	12° 32' 7"	38' 9"	309° 31' 6"	03' 8" S						251° 27' 2"	36' 7"	95° 48' 4"	6' 7"	39' 2"	4' 2"	60°	06:17	07:06	07:51	14:54	16:13	17:34																						
	06	229° 31' 4"	226° 54' 9"	24' 5"	221° 12' 7"	18' 8"	27° 35' 2"	38' 9"	324° 33' 8"	03' 8" S			Alioth	166° 18' 3"	55° 51' 8" N	266° 27' 2"	35' 9"	110° 14' 1"	6' 8"	35' 0"	4' 4"	N 58°	06:15	07:01	07:43	15:05	16:21	17:40																						
	07	244° 33' 8"	241° 55' 9"	25' 5"	236° 13' 5"	19' 6"	42° 37' 7"	38' 9"	339° 36' 1"	03' 8" S			Alkaid	152° 56' 8"	49° 13' 5" N	281° 27' 2"	35' 1"	124°																																

2017 February 12, 13, 14 (Sun, Mon, Tue)

	GMT	ARIES		VENUS		-4.6		MARS		+1.2		JUPITER		-2.2		SATURN		+0.6		STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	Nautical	Civil	12	13	14								
Sunday	12 00	142° 14'.0	138° 07'.5	5° 32'.5 N	132° 03'.7	4° 09'.0 N	300° 19'.7	7° 37'.5 S	237° 02'.0	22° 04'.2 S	Acamar	315° 16'.5	40° 14'.6 S	176° 27'.0	13° 41'.9 S	344° 40'.9	10'.8	9° 37'.8 N	57.5	N 70°	06:20	07:32	08:42	18:25	20:02	21:37										
	01	157° 16'.5	153° 08'.6	33'.5	147° 04'.5	09'.7	315° 22'.2	37'.4	252° 04'.2	04'.2	Achernar	335° 25'.3	57° 09'.4 S	191° 27'.0	41'.1	359° 10'.7	10'.9	28'.4	9'.5	57.4	68°	06:17	07:23	08:26	18:32	20:05	21:34									
	02	172° 18'.9	168° 09'.8	34'.5	162° 05'.3	10'.5	330° 24'.7	37'.4	267° 06'.5	04'.2	Acruz	173° 05'.9	63° 11'.4 S	206° 27'.0	40'.2	13° 40'.6	11'.0	18'.9	9'.5	66°	06:15	07:16	08:12	18:39	20:07	21:32										
	03	187° 21'.4	183° 11'.0	35'.5	177° 06'.1	11'.2	345° 27'.2	37'.4	282° 08'.7	04'.2	Adhara	255° 10'.3	29° 00'.1 S	221° 27'.0	39'.4	28° 10'.6	11'.0	09'.4	9'.6	64°	06:13	07:09	08:01	18:45	20:09	21:30										
	04	202° 23'.9	198° 12'.1	36'.5	192° 06'.8	12'.0	0° 29'.7	37'.4	297° 10'.9	04'.2	Aldebaran	290° 46'.4	16° 32'.4 N	236° 27'.0	38'.6	42° 40'.6	11'.1	8° 59'.8 N	9'.5	62°	06:12	07:04	07:51	18:49	20:10	21:29										
	05	217° 26'.3	213° 13'.3	37'.5	207° 07'.6	12'.8	15° 32'.2	37'.3	312° 13'.2	04'.2		251° 27'.0	37'.7	57° 10'.7	11'.2	50'.3	9'.7		57.3	60°	06:10	06:59	07:43	18:54	20:12	21:28										
	06	232° 28'.8	228° 14'.5	38'.5	222° 08'.4	13'.5	30° 34'.7	37'.3	327° 15'.4	04'.2	Alioth	166° 18'.2	55° 51'.8 N	266° 27'.0	36'.9	71° 40'.9	11'.2	40'.6	9'.6	N 58°	06:08	06:54	07:36	18:57	20:13	21:26										
	07	247° 31'.3	243° 15'.7	39'.5	237° 09'.1	14'.3	45° 37'.3	37'.3	342° 17'.7	04'.2	Alkaid	152° 56'.8	49° 13'.5 N	281° 27'.0	36'.1	86° 11'.1	11'.3	31'.0	9'.7	56°	06:07	06:50	07:29	19:01	20:14	21:25										
	08	262° 33'.7	258° 16'.9	40'.5	252° 09'.9	15'.0	60° 39'.8	37'.3	357° 19'.																											

2017 February 15, 16, 17 (Wed, Thur, Fri)

	GMT	ARIES	VENUS	-4.6	MARS	+1.2	JUPITER	-2.3	SATURN	+0.6	STARS			SUN		MOON					Lat	Twilight		Sunrise	15	Moonrise	
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	06:09	07:29	08:47	23:19	-	00:57
Wednesday	15 00	145° 11'.4	139° 37'.1	6° 43'.0 N	132° 59'.4	5° 03'.2 N	303° 20'.7	7° 35'.3 S	239° 44'.2	22° 04'.5 S	Acamar	315° 16'.6	40° 14'.6 S	176° 28'.3	12° 41'.1 S	310° 40'.2	14.0	2° 26'.6 S	9.9	55'.5	N 70°	06:08	07:20	08:28	23:09	-	00:40
	01	160° 13'.9	154° 38'.4	43'.9	148° 00'.2	03'.9	318° 23'.2	35'.2	254° 46'.5	04'.5	Achernar	335° 25'.3	57° 09'.4 S	191° 28'.4	40'.2	325° 13'.2	14.0	36'.5	10.0	55'.4	N 68°	06:07	07:12	08:13	23:02	-	00:27
	02	175° 16'.4	169° 39'.8	44'.9	163° 01'.0	04'.7	333° 25'.8	35'.2	269° 48'.7	04'.5	Acrux	173° 05'.9	63° 11'.4 S	206° 28'.4	39'.3	339° 46'.2	14.1	46'.5	9.9		66°	06:06	07:06	08:01	22:55	-	00:17
	03	190° 18'.8	184° 41'.1	45'.8	178° 01'.7	05'.4	348° 28'.3	35'.2	284° 51'.0	04'.5	Adhara	255° 10'.3	29° 00'.1 S	221° 28'.4	38'.5	354° 19'.3	14.0	56'.4	9.9		64°	06:05	07:00	07:51	22:50	-	00:08
	04	205° 21'.3	199° 42'.4	46'.8	193° 02'.5	06'.2	209° 53'.2	35'.1	239° 59'.2	04'.5	Aldebaran	290° 46'.4	16° 32'.4 N	236° 28'.5	37'.6	8° 52'.3	14.1	3° 08'.3 S	9.8		62°	06:04	06:56	07:42	22:45	24:00	25:13
	05	220° 23'.7	214° 43'.8	47'.7	208° 03'.3	06'.9	18° 33'.3	35'.1	314° 55'.5	04'.5		251° 28'.5	36'.8	251° 28'.5	36'.8	23° 25'.4	14.1	16'.1	9.9	55'.3	60°	06:03	06:51	07:35	22:41	23:53	25:03
	06	235° 26'.2	229° 45'.1	48'.7	223° 04'.1	07'.7	33° 35'.9	35'.1	329° 57'.8	04'.5	Alioth	166° 18'.2	55° 51'.8 N	266° 28'.5	35.9	37° 58'.5	14.1	26'.0	9.8		N 58°	06:02	06:47	07:28	22:38	23:48	24:55
	07	250° 28'.7	244° 46'.5	49'.6	238° 04'.8	08'.4	48° 38'.4	35'.0	345° 00'.0	04'.5	Alkaid	152° 56'.8	49° 13'.5 N	281° 28'.6	35.0	52° 31'.6	14.2	35.8	9.8		56°	06:01	06:44	07:23	22:35	23:42	24:48
	08	265° 31'.1	259° 47'.8	50'.6	253° 05'.6	09'.2	63° 40'.9	35'.0	0° 02'.3																		

2017 February 18, 19, 20 (Sat, Sun, Mon)

GMT		ARIES		VENUS		-4.6		MARS		+1.2		JUPITER		-2.3		SATURN		+0.6		STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise										
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name			SHA		Dec		GHA		v		Dec		d		HP		N 72°	Nautical	Civil		18	Moonrise		
S a t u r d a y	00	148° 08.8	141° 18.9	7° 49.0 N	133° 55.0	5° 56.8 N	306° 23.3	7° 32.5 S	242° 27.2	22° 04.8 S	257° 29.4	04.8	Acamar	315° 16.6	40° 14.6 S	176° 31.3	11° 38.4 S	278° 31.6	13.9	12° 56.1 S	7.1	54.3	N 70°	05:56	07:07	08:13	02:12	03:43	05:11															
	01	163° 11.3	156° 20.4	49.9	148° 55.8	57.6	321° 25.8	32.4	283° 04.5	13.9	13° 03.2 S	7.0	68°	05:56	07:01	08:01	01:52	03:14	04:33																									
	02	178° 13.8	171° 21.9	50.8	163° 56.6	58.3	336° 28.4	32.4	272° 31.7	04.8	Acruz	173° 05.8	63° 11.4 S	206° 31.4	36.6	307° 37.4	13.9	10.2	6.9	66°	05:56	06:56	07:50	01:36	02:53	04:06																		
	03	193° 16.2	186° 23.4	51.7	178° 57.4	59.0	351° 30.9	32.4	287° 34.0	04.8	Adhara	255° 10.3	29° 00.1 S	221° 31.5	35.7	322° 10.3	13.8	17.1	6.9	64°	05:56	06:51	07:41	01:23	02:36	03:45																		
	04	208° 18.7	201° 24.9	52.5	193° 58.1	59.8	6° 33.5	32.3	302° 36.2	04.8	Aldebaran	290° 46.4	16° 32.4 N	236° 31.5	34.8	336° 43.1	13.9	24.0	6.8	62°	05:56	06:47	07:33	01:13	02:23	03:28																		
	05	223° 21.2	216° 26.4	53.4	208° 58.9	6° 00.5 N	21° 36.0	32.3	317° 38.5	04.8		251° 31.6	34.0	351° 16.0	13.8	30.8	6.8	60°	05:55	06:44	07:27	01:03	02:01	03:15																				
	06	238° 23.6	231° 28.0	54.3	223° 59.7	01.3	36° 38.6	32.2	332° 40.8	04.8	Alioth	166° 18.2	55° 51.8 N	266° 31.6	33.1	5° 48.8	13.8	37.6	6.7	N 58°	05:55	06:40	07:21	00:55	02:01	03:03																		
	07	253° 26.1	246° 29.5	55.2	239° 00.4	02.0	51° 41.1	32.2	347° 43.1	04.8	Alkaid	152° 56.7	49° 13.5 N	281° 31.7	32.2	20° 21.6	13.8	44.3	6.6	56°	05:54	06:37	07:16	00:48	01:52	02:53																		
	08	268° 28.6	261° 31.0	56.0	254° 01.2	02.7	66° 43.7	32.1	2° 45.3	04.8	Alnair	17° 41.1	46° 52.7 S	296° 31.7	31.3	34° 54.4	13.7	50.9	6.6	54°	05:54	06:35	07:11	00:42	01:44	02:44																		
	09	283° 31.0	276° 32.5	56.9	269° 02.0	03.5	81° 46.2	32.1	17° 47.6	04.8	Alnilam	275° 43.7	1° 11.8 S	311° 31.8	30.4	49° 27.1	13.7	57.5	6.5	54.2	52°	05:53	06:32	07:07	00:36	01:37	02:35																	
	10	298° 33.5	291° 34.1	57.8	284° 02.8	04.2	96° 48.8	32.1	32° 49.9	04.8	Alphard	217° 53.3	8° 44.2 S	326° 31.9	29.5	63° 59.8	13.7	14° 04.0 S	6.5	50°	05:52	06:30	07:03	00:31	01:31	02:28																		
	11	313° 35.9	306° 35.6	58.7	299° 03.5	05.0	111° 51.3	32.0	47° 52.1	04.8		341° 31.9	28.7	78° 32.5	13.7	10.5	6.4	45°	05:50	06:25	06:55	00:20	01:17	02:13																				
	12	328° 38.4	321° 37.1	7° 59.5 N	314° 04.3	6° 05.7 N	126° 53.9	7° 32.0 S	62° 54.4	22° 04.8 S	Alphecca	126° 08.9	26° 39.4 N	356° 32.0	11° 27.8 S	93° 05.2	13.7	14° 16.9 S	6.3	54.2	N 40°	05:48	06:20	06:48	00:11	01:06	02:00																	
	13	343° 40.9	336° 38.7	8° 00.4 N	329° 05.1	06.4	141° 56.4	31.9	77° 56.7	04.8	Alpheratz	357° 41.2	29° 11.0 N	11° 32.0	26.9	107° 37.9	13.6	23.2	6.2	35°	05:46	06:16	06:41	00:04	00:57	01:49																		
	14	358° 43.3	351° 40.2	01.3	344° 05.8	07.2	156° 59.0	31.9	92° 58.9	04.8	Altair	62° 06.1	8° 54.8 N	26° 32.1	28.0	122° 10.5	13.6	29.5	6.3	30°	05:44	06:12	06:36	-	00:49	01:40																		
	15	13° 45.8	6° 41.7	02.1	359° 06.6	07.9	172° 01.5	31.8	108° 01.2	04.8	Ankaa	353° 13.7	42° 13.1 S	41° 32.1	25.1	136° 43.1	13.6	35.7	6.1	20°	05:38	06:04	06:27	-	00:34	01:24																		
16	28° 48.3	21° 43.3	03.0	14° 07.4	08.7	187° 04.1	31.8	123° 03.5	04.8	Antares	112° 23.2	26° 27.9 S	56° 32.2	24.2	151° 15.7	13.5	41.8	6.1	N 10°	05:32	05:57	06:18	-	00:22	01:10																			
17	43° 50.7	36° 44.8	03.9	29° 08.2	09.4	202° 06.6	31.7	138° 05.8	04.8		71° 32.2	23.3	165° 48.2	13.5	47.9	6.0	0°	05:25	05:49	06:10	-	00:10	00:57																					
18	58° 53.2	51° 46.4	04.7	44° 08.9	10.1	217° 09.2	31.7	153° 08.0	04.8	Arcturus	145° 53.3	19° 05.5 N	86° 32.3	22.4	180° 20.7	13.5	53.9	6.0	S 10°	05:16	05:41	06:02	23:59	-	00:44																			
19	73° 55.7	66° 47.9	05.6	59° 09.7	10.9	232° 11.7	31.7	168° 10.3	04.8	Atria	107° 22.9	69° 03.0 S	101° 32.4	21.6	194° 53.2	13.5	59.9	5.9	20°	05:05	05:31	05:54	23:47	-	00:30																			
20	88° 58.1	81° 49.5	06.5	74° 10.5	11.6	247° 14.3	31.6	183° 12.6	04.8	Avior	234° 16.4	59° 34.2 S	116° 32.4	20.7	209° 25.7	13.4	15° 05.8 S	5.8	30°	04:50	05:19	05:44	23:33	-	00:14																			
21	104° 00.6	96° 51.0	07.3	89° 11.2	12.4	262° 16.8	31.6	198° 14.8	04.8	Bellatrix	278° 29.2	6° 21.6 N	131° 32.5	19.8	223° 58.1	13.5	11.6	5.8	35°	04:40	05:11	05:38	23:24	-	00:04																			
22	119° 03.5	111° 52.6	08.2	104° 12.0	13.1	277° 19.4	31.5	213° 17.1	04.8	Betelgeuse	270° 58.4	7° 24.3 N	146° 32.5	18.9	238° 30.6	13.3	17.4	5.6	40°	04:29	05:03	05:31	23:15	23:54	24:37																			
23	134° 05.0	126° 54.2	09.0	119° 12.8	13.8	292° 21.9	31.5	228° 19.4	04.8		161° 32.6	18.0	253° 02.9	13.4	23.0	5.7	45°	04:14	04:52	05:23	23:05	23:42	24:24																					
S u n d a y	00	149° 08.0	141° 55.7	8° 09.9 N	134° 13.6	6° 14.6 N	307° 24.5	7° 31.4 S	243° 21.7	22° 04.8 S	Canopus	263° 54.7	52° 42.7 S	176° 32.7	11° 17.1 S	267° 35.3	13.3	15° 28.7 S	5.5	54.2	S 50°	03:56	04:39	05:14	22:52	23:27	24:07																	
	01	164° 10.4	156° 57.3	10.8	149° 14.3	15.3	322° 27.0	31.4	258° 23.9	04.8	Capella	280° 30.6	46° 00.8 N	191° 32.7	16.2	282° 07.6	13.3	34.2	5.4	52°	03:47	04:33	05:09	22:46	23:20	24:00																		
	02	179° 12.9	171° 58.9	11.6	164° 15.1	16.0	337° 29.6	31.3	273° 26.2	04.8	Deneb	49° 30.2	45° 20.5 S	206° 32.8	15.3	296° 39.9	13.3	39.7	5.5	54°	03:36	04:26	05:04	22:39	23:12	23:51																		
	03	194° 15.4	187° 00.4	12.5	179° 15.9	16.8	352° 32.1	31.3	288° 28.5	04.8	Denebola	182° 30.9	14° 28.5 S	221° 32.8	14.4	311° 12.2	13.3	45.1	5.4	56°	03:24	04:18	04:59	22:32	23:03	23:42																		
	04	209° 17.8	202° 02.0	13.3	194° 16.6	17.5	7° 34.7	31.2	303° 30.7	04.8	Diphda	348° 53.7	17° 53.8 S	236° 32.9	13.5	325° 44.5	13.2	50.5	5.2	58°	03:10	04:09	04:53	22:23	23:54	23:31																		
	05	224° 20.3	217° 03.6	14.2	209° 17.4	18.3	22° 37.3	31.2	318° 33.0	04.8		251° 33.0	12.7	340° 16.7	13.2	55.7	5.2	S 60°	02:53	03:58	04:46	22:14	22:42	23:18																				
	06	239° 22.8	232° 05.2	15.0	224° 18.2	19.0	37° 39.8	31.1	333° 35.3	04.8	Dubhe	193° 48.1	61° 39.4 N	266° 33.0	11.8	354° 48.9	13.1	16° 00.9 S	5.2	S 62°	02:31	03:46	04:38	22:03	22:29	23:04																		
	07	254° 25.2	247° 06.8	15.9	239° 19.0	19.7	52° 42.4	31.1	348° 37.6	04.8	Elath	278° 09.3	58° 37.1 N	281° 33.1	10.9	9° 21.0	13.1	06.1	5.0																									
	08	269° 27.2	262° 08.3	16.7	254° 19.7	20.5	67° 44.9	31.1	3° 39.8	04.9	Eltanin	90° 45.2	51° 29.1 N	296° 33.1	10.0	23° 53.1	13.1	11.1	5.0																									
	09	284° 30.7	277° 09.9	17.6	269° 20.5	21.2	82° 47.5	31.0	18° 42.1	04.9	Enif	33° 45.5	9° 57.2 N	311° 33.2	09.1	38° 25.2	13.1	16.1	5.0																									
	10	299° 32.6	292° 11.5	18.4	284° 21.3	21.9	97° 50.0																																					

2017 February 21, 22, 23 (Tue, Wed, Thur)

	GMT	ARIES	VENUS			-4.6			MARS			+1.3			JUPITER			-2.3			SATURN			+0.6			STARS			SUN			MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec		Name	SHA	Dec		GHA	Dec		GHA	v	Dec	d	HP	N 72°	Nautical	Civil		21	22	23								
Tuesday	00	151° 06.3	143° 14.1	8° 49.8 N		134° 50.5	6° 49.8 N		309° 27.4	7° 29.1 S		245° 10.9	22° 05.0 S		Acamar	315° 16.6	40° 14.6 S	176° 35.8	10° 34.0 S		244° 52.4	11.9	18° 31.2 S	1.8	54.6	N 70°	05:44	06:55	07:59	06:30	07:22	07:45												
	01	166° 08.7	158° 15.8	50.6		149° 51.3	50.6		324° 30.0	29.0		260° 13.2	05.0		Achernar	335° 25.4	57° 09.4 S	191° 35.9	33.1		259° 23.3	11.8	33.0	1.8		68°	05:45	06:50	07:48	05:41	06:32	07:05												
	02	181° 11.2	173° 17.5	51.4		164° 52.1	51.3		339° 32.6	29.0		275° 15.4	05.0		Acruz	173° 05.8	63° 11.5 S	206° 35.9	32.2		273° 54.1	11.7	34.8	1.6		66°	05:46	06:45	07:39	05:09	06:01	06:38												
	03	196° 13.6	188° 19.2	52.2		179° 52.8	52.0		354° 35.1	28.9		290° 17.7	05.0		Adhara	255° 10.3	29° 00.1 S	221° 36.0	31.3		288° 24.8	11.8	36.4	1.6	54.7	64°	05:47	06:42	07:31	04:46	05:37	06:17												
	04	211° 16.1	203° 20.9	53.0		194° 53.6	52.8		9° 37.7	28.9		305° 20.0	05.0		Aldebaran	290° 46.5	16° 32.4 N	236° 36.1	30.4		302° 55.6	11.7	38.0	1.5		62°	05:47	06:38	07:24	04:28	05:19	06:00												
	05	226° 18.6	218° 22.6	53.8		209° 54.4	53.5		24° 40.3	28.8		320° 22.3	05.0					251° 36.2	29.5		317° 26.3	11.7	39.5	1.4		60°	05:47	06:36	07:18	04:13	05:03	05:46												
	06	241° 21.0	233° 24.3	54.6		224° 55.2	54.2		39° 42.8	28.8		335° 24.6	05.0		Alioth	166° 18.2	55° 51.8 N	266° 36.2	28.6		331° 57.0	11.6	40.9	1.3		N 58°	05:48	06:33	07:13	04:00	04:50	05:34												
	07	256° 23.5	248° 26.1	55.4		239° 55.9	55.0		54° 45.4	28.7		350° 26.8	05.0		Alkaid	152° 56.7	49° 13.5 N	281° 36.3	27.7		346° 27.6	11.6	42.2	1.2		56°	05:47	06:31	07:08	03:49	04:39	05:23												
	08	271° 26.0	263° 27.8	56.2		254° 56.7	55.7		69° 48.0	28.7		5° 29.1	05.0		Alnair	27° 41.1	46° 52.7 S	296° 36.4	26.8		0° 58.2	11.6	43.4	1.1		54°	05:47	06:28	07:04	03:39	04:29	05:14												
	09	286° 28.4	278° 29.5	57.0		269° 57.5	56.4		84° 50.5	28.6		20° 31.4	05.0		Alnilam	275° 43.7	1° 11.8 S	311° 36.5	25.9		15° 28.8	11.6	44.5	1.0	54.8	52°	05:47	06:26	07:01	03:30	04:21	05:06												
	10	301° 30.9	293° 31.2	57.8		284° 58.2	57.2		99° 53.1	28.6		35° 33.7	05.0		Alphard	217° 53.3	8° 44.2 S	326° 36.5	25.0		29° 59.4	11.5	45.5	1.0		50°	05:47	06:24	06:57	03:22	04:13	04:58												
	11	316° 33.4	308° 33.0	58.5		299° 59.0	57.9		114° 55.7	28.5		50° 36.0	05.0					341° 36.6	24.1		44° 29.9	11.5	46.5	0.8		45°	05:46	06:20	06:50	03:06	03:56	04:42												
	12	331° 35.8	323° 34.7	8° 59.3 N		314° 59.8	6° 58.6 N		129° 58.3	7° 28.5 S		65° 38.2	22° 05.0 S		Alphecca	126° 08.9	26° 39.4 N	356° 36.7	10° 23.2 S		59° 00.4	11.5	18° 47.3 S	0.8	54.8	N 40°	05:45	06:16	06:43	02:52	03:42	04:29												
	13	346° 38.3	338° 36.4	9° 00.1 N		330° 00.5	59.4		145° 00.8	28.4		80° 40.5	05.0		Alpheratz	357° 41.2	29° 11.0 N	11° 36.8	33.0		73° 30.9	11.4	48.1	0.7		35°	05:43	06:12	06:38	02:41	03:30	04:18												
	14	1° 40.8	353° 38.2	00.9		345° 01.3	7° 00.1 N		160° 03.4	28.4		95° 42.8	05.0		Altair	62° 06.1	8° 54.8 N	26° 36.8	21.3		88° 01.3	11.5	48.8	0.6		30°	05:41	06:09	06:33	02:31	03:20	04:08												
	15	16° 43.2	8° 39.9	01.7		0° 02.1	00.8		175° 06.0	28.3		110° 45.1	05.0		Ankaa	353° 13.7	42° 13.1 S	41° 36.9	20.4		102° 31.8	11.3	49.4	0.5		20°	05:37	06:02	06:25	02:13	03:03	03:52												
	16	31° 45.7	23° 41.7	02.5		15° 02.8	01.5		190° 08.5	28.3		125° 47.4	05.0		Antares	112° 23.2	26° 27.9 S	56° 37.0	19.5		117° 02.1	11.4	49.9	0.4		N 10°	05:31	05:56	06:17	01:58	02:47	03:37												
	17	46° 48.1	38° 43.4	03.3		30° 03.6	02.3		205° 11.1	28.2		140° 49.6	05.0					71° 37.1	18.6		131° 32.5	11.3	50.3	0.3		0°	05:25	05:49	06:10	01:44	02:33	03:23												
	18	61° 50.6	53° 45.2	04.0		45° 04.4	03.0		220° 13.7	28.2		155° 51.9	05.0		Arcturus	145° 53.3	19° 05.5 N	86° 37.1	17.7		146° 02.8	11.3	50.6	0.2		S 10°	05:17	05:41	06:03	01:30	02:19	03:10												
	19	76° 53.1	68° 46.9	04.8		60° 05.2	03.7		235° 16.3	28.1		170° 54.2	05.0		Atria	107° 22.9	69° 03.0 S	101° 37.2	16.8		160° 33.1	11.3	50.8	0.1		20°	05:06	05:32	05:55	01:15	02:04	02:55												
	20	91° 55.5	83° 48.7	05.6		75° 05.9	04.5		250° 18.8	28.1		185° 56.5	05.0		Avior	234° 16.4	59° 34.2 S	116° 37.3	15.9		175° 03.4	11.3	50.9	0.0	55.0	30°	04:52	05:21	05:46	00:58	01:46	02:38												
	21	106° 58.0	98° 50.4	06.4		90° 06.7	05.2		265° 21.4	28.0		200° 58.8	05.0		Bellatrix	278° 29.2	6° 21.6 N	131° 37.4	15.0		189° 33.7	11.2	50.9	0.0		35°	04:43	05:14	05:41	00:48	01:36	02:28												
	22	122° 00.5	113° 52.2	07.2		105° 07.5	05.9		280° 24.0	27.9		216° 01.0	05.0		Betelgeuse	270° 58.4	7° 24.3 N	146° 37.5	14.1		204° 03.9	11.2	50.9	0.2		40°	04:33	05:06	05:35	00:37	01:25	02:17												
	23	137° 02.9	128° 54.0	07.9		120° 08.2	06.6		295° 26.6	27.9		231° 03.3	05.0					161° 37.5	13.2		218° 34.1	11.2	50.7	0.2		45°	04:19	04:57	05:27	00:24	01:11	02:04												
Wednesday	00	152° 05.4	143° 55.7	9° 08.7 N		135° 09.0	7° 07.4 N		310° 29.1	7° 27.8 S		246° 05.6	22° 05.0 S		Canopus	263° 54.7	52° 42.7 S	176° 37.6	10° 12.2 S		233° 04.3	11.1	18° 50.5 S	0.3	55.0	S 50°	04:02	04:45	05:19	00:07	00:54	01:48												
	01	167° 07.9	158° 57.5	09.5		150° 09.8	08.1		325° 31.7	27.8		261° 07.9	05.0		Capella	280° 30.6	46° 00.8 N	191° 37.7	11.3		247° 34.4	11.2	50.2	0.5	55.1	52°	03:54	04:39	05:15	-	00:46	01:41												
	02	182° 10.3	173° 59.3	10.3		165° 10.5	08.8		340° 34.3	27.7		276° 10.2	05.0		Deneb	49° 30.2	45° 20.4 N	206° 37.8	10.4		262° 04.6	11.1	49.7	0.5		54°	03:44	04:32	05:11	-	00:38	01:32												
	03	197° 12.8	189° 01.1	11.0		180° 11.3	09.6		355° 36.9	27.7		291° 12.5	05.0		Denebola	182° 30.8	14° 28.5 N	221° 37.8	09.5		276° 34.7	11.0	49.2	0.6		56°	03:33	04:25	05:06	-	00:28	01:23												
	04	212° 15.3	204° 02.8	11.8		195° 12.1	10.3		10° 39.4	27.6		306° 14.7	05.0		Diphda	348° 53.7	17° 53.8 S	236° 37.9	08.6		291° 04.7	11.1	48.6	0.7		58°	03:20	04:17	05:00	-	00:17	01:12												
	05	227° 17.7	219° 04.6	12.6		210° 12.8	11.0		25° 42.0	27.6		321° 17.0	05.0					251° 38.0	07.7		305° 34.8	11.0	47.9	0.8	55.2	S 60°	03:05	04:08	04:54	-	00:04	01:00												
	06	242° 20.2	234° 06.4	13.3		225° 13.6	11.7		40° 44.6	27.5		336° 19.3	05.0		Dubhe																													

2017 February 24, 25, 26 (Fri, Sat, Sun)

GMT		ARIES			VENUS			-4.6			MARS			+1.3			JUPITER			-2.3			SATURN			+0.5			STARS			SUN			MOON			Lat	Twilight		Sunrise	Moonrise																												
		GHA			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			Name			SHA			Dec				GHA			Dec			GHA			v			Dec			d			HP			Nautical		Civil		24		Moonrise		25		26
F r i d a y	24	00	154° 03.7	145° 24.2	9° 44.4 N	135° 45.9	7° 42.2 N	312° 33.1	7° 25.1 S	247° 55.3	22° 05.1 S	262° 57.6	05.1	338° 09.1	05.2	323° 06.8	05.2	Alloth	166° 18.1	55° 51.9 N	266° 42.2	22.7	295° 45.9	10.3	16.7	5.5	56.8	N 72°	05:29	06:46	07:57	08:35	08:22	08:13																																				
	01	169° 06.1	160° 26.1	45.1	150° 46.6	42.9	327° 35.7	25.1	262° 57.6	05.1	Achernar	335° 25.4	57° 09.4 S	191° 41.8	27.3	223° 19.1	10.4	42.5	5.0	56.3	N 70°	05:32	06:42	07:45	07:53	07:56	07:57																																											
	02	184° 08.6	175° 28.0	45.8	165° 47.4	43.6	342° 38.3	25.0	277° 59.9	05.1	Acruz	173° 05.8	63° 11.5 S	206° 41.9	26.4	237° 48.5	10.3	37.5	5.1		66°	05:36	06:35	07:27	07:03	07:21	07:34																																											
	03	199° 11.1	190° 29.9	46.5	180° 48.2	44.4	357° 40.9	24.9	293° 02.2	05.2	Adhara	255° 10.3	29° 00.1 S	221° 42.0	25.4	252° 17.8	10.4	32.4	5.1		64°	05:37	06:32	07:21	06:46	07:08	07:25																																											
	04	214° 13.5	205° 31.9	47.2	195° 48.9	45.1	12° 43.5	24.9	308° 04.5	05.2	Aldebaran	290° 46.5	16° 32.4 N	236° 42.1	24.5	266° 47.2	10.3	27.3	5.3	56.4	62°	05:39	06:30	07:15	06:32	06:57	07:18																																											
	05	229° 16.0	220° 33.8	47.9	210° 49.7	45.8	27° 46.0	24.8	323° 06.8	05.2				251° 42.1	23.6	281° 16.5	10.4	22.0	5.3		60°	05:39	06:27	07:10	06:20	06:48	07:11																																											
	06	244° 18.5	235° 35.7	48.6	225° 50.5	46.5	42° 48.6	24.8	338° 09.1	05.2	Alioth	166° 18.1	55° 51.9 N	266° 42.2	22.7	295° 45.9	10.3	16.7	5.5		N 58°	05:40	06:25	07:05	06:10	06:40	07:05																																											
	07	259° 20.9	250° 37.7	49.3	240° 51.2	47.2	57° 51.2	24.7	353° 11.4	05.2	Alkaid	152° 56.7	49° 13.5 N	281° 42.3	21.7	310° 15.2	10.4	11.2	5.5		56°	05:41	06:23	07:01	06:01	06:32	07:00																																											
	08	274° 23.4	265° 39.6	50.0	255° 52.0	48.0	72° 53.8	24.6	8° 13.7	05.2	Alnair	27° 41.1	46° 52.7 S	296° 42.4	20.8	324° 44.6	10.3	05.7	5.7	56.5	54°	05:41	06:22	06:57	05:52	06:26	06:55																																											
	09	289° 25.9	280° 41.6	50.7	270° 52.8	48.7	87° 56.4	24.6	23° 16.0	05.2	Alnilam	275° 43.7	1° 11.8 S	311° 42.5	19.9	339° 13.9	10.3	00.0	5.7		52°	05:41	06:20	06:54	05:45	06:20	06:51																																											
	10	304° 28.3	295° 43.5	51.4	285° 53.5	49.4	102° 59.0	24.5	38° 18.3	05.2	Alphard	217° 53.3	8° 44.2 S	326° 42.6	19.0	353° 43.2	10.3	15° 54.3 S	5.8		50°	05:41	06:19	06:51	05:39	06:15	06:47																																											
	11	319° 30.8	310° 45.5	52.1	300° 54.3	50.1	118° 01.6	24.5	53° 20.5	05.2				341° 42.7	18.0	8° 12.5	10.4	48.5	5.9	56.6	45°	05:41	06:15	06:45	05:25	06:03	06:39																																											
	12	334° 33.2	325° 47.4	9° 52.8 N	315° 55.1	7° 50.8 N	133° 04.2	7° 24.4 S	68° 22.8	22° 05.2 S	Alphecca	126° 08.8	26° 39.3 N	356° 42.8	9° 17.1 S	22° 41.9	10.3	15° 42.6 S	6.0	56.6	N 40°	05:40	06:12	06:39	05:13	05:54	06:32																																											
	13	349° 35.7	340° 49.4	53.5	330° 55.8	51.6	148° 06.8	24.3	83° 25.1	05.2	Alpheratz	357° 41.2	29° 11.0 N	11° 42.9	16.2	37° 11.2	10.3	36.6	6.0		35°	05:39	06:09	06:34	05:03	05:46	06:26																																											
	14	4° 38.2	355° 51.3	54.2	345° 56.6	52.3	163° 09.4	24.3	98° 27.4	05.2	Altair	62° 06.0	8° 54.8 N	26° 43.0	15.3	51° 40.5	10.3	30.6	6.2		30°	05:38	06:06	06:30	04:54	05:38	06:21																																											
	15	19° 40.6	10° 53.3	54.9	0° 57.4	53.0	178° 12.0	24.2	113° 29.7	05.2	Ankaa	353° 13.7	42° 13.1 S	41° 43.1	14.3	66° 09.8	10.3	24.4	6.3	56.7	20°	05:35	06:00	06:23	04:39	05:26	06:11																																											
	16	34° 43.1	25° 55.3	55.6	15° 58.1	53.7	193° 14.6	24.2	128° 32.0	05.2	Antares	112° 23.2	26° 28.0 S	56° 43.2	13.4	80° 39.1	10.3																																																					

	GMT	ARIES		VENUS		MARS		JUPITER		SATURN		STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise			1
		GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP		Nautical	Civil		27	28	1	
Monday	27 00	157° 01'.1		147° 50'.6	10° 31'.8 N	136° 41'.0	8° 33'.8 N	315° 40'.3	7° 20'.6 S	250° 40'.6	22° 05'.3 S	Acamar	315° 16'.6	40° 14'.6 S	176° 48'.9	8° 21'.1 S	172° 01'.2	10° 3	7° 23'.5 S	10° 3	58'.2	N 72°	05:14	06:32	07:41	08:06	07:59	07:52	
	01	172° 03'.6		162° 52'.8	32'.4	151° 41'.8	34'.5	330° 42'.9	20'.5	265° 42'.9	05'.3	Achernar	335° 25'.4	57° 09'.4 S	191° 49'.0	20'.1	186° 30'.5	10° 4	13'.2	10° 3		N 70°	05:19	06:29	07:31	07:57	07:57	07:56	
	02	187° 06'.0		177° 54'.9	33'.0	166° 42'.5	35'.2	345° 45'.5	20'.4	280° 45'.2	05'.3	Acruz	173° 05'.8	63° 11'.5 S	206° 49'.1	19'.2	200° 59'.9	10° 4	02'.9	10° 4		68°	05:22	06:26	07:23	07:50	07:55	07:59	
	03	202° 08'.8		192° 57'.1	33'.6	181° 43'.3	35'.9	0° 48'.1	20'.4	295° 47'.5	05'.3	Adhara	255° 10'.3	29° 00'.1 S	221° 49'.2	18'.3	215° 29'.3	10° 3	6° 52'.5 S	10° 5	58'.3	66°	05:25	06:24	07:16	07:44	07:53	08:02	
	04	217° 10'.9		207° 59'.3	34'.2	196° 44'.0	36'.6	15° 50'.7	20'.3	310° 49'.8	05'.3	Aldebaran	290° 46'.5	16° 32'.4 N	236° 49'.3	17'.3	229° 58'.6	10° 4	42'.0	10° 5		64°	05:28	06:22	07:10	07:39	07:52	08:04	
	05	232° 13'.4		223° 01'.4	34'.8	211° 44'.8	37'.3	30° 53'.3	20'.2	325° 52'.1	05'.3				251° 49'.4	16'.4	244° 28'.0	10° 3	31'.5	10° 5		62°	05:30	06:21	07:05	07:35	07:50	08:06	
	06	247° 15'.9		238° 03'.6	35'.4	226° 45'.6	38'.0	45° 55'.9	20'.2	340° 54'.4	05'.3	Alioth	166° 18'.1	55° 51'.9 N	266° 49'.5	15'.4	258° 57'.3	10° 4	21'.0	10° 6		60°	05:31	06:19	07:01	07:31	07:49	08:08	
	07	262° 18'.3		253° 05'.8	36'.0	241° 46'.3	38'.8	60° 58'.5	20'.1	355° 56'.7	05'.3	Alkaid	152° 56'.7	49° 13'.5 N	281° 49'.7	14'.5	273° 26'.7	10° 3	10° 4	10° 6	58'.4	N 58°	05:32	06:18	06:57	07:28	07:48	08:09	
	08	277° 20'.8		268° 08'.0	36'.6	256° 47'.1	39'.5	76°																					

2017 March 2, 3, 4 (Thur, Fri, Sat)

GMT	ARIES	VENUS	-4.6	MARS	+1.3	JUPITER	-2.3	SATURN	+0.5	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise			
										Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	04:59	06:17	07:25	07:46	07:38	07:29	
T h u r s d a y	00	159° 58.5	160° 34.9	11° 10.9 N	137° 35.9	9° 24.6 N	318° 48.9	7° 15.5 S	253° 26.7	22° 05.4 S	Acamar	315° 16.7	40° 14.6 S	176° 57.3	7° 12.9 S	134° 53.4	9.4	5° 56.8 N	10.9	59.3	N 70°	05:05	06:16	07:17	07:56	07:57	07:59
	01	175° 01.0	165° 37.3	11.4	152° 36.6	25.3	333° 51.5	15.4	268° 29.0	05.4	Achernar	335° 25.4	57° 09.4 S	191° 57.4	11.9	149° 21.8	9.4	6° 07.7 N	10.9	68°	05:10	06:14	07:10	08:04	08:11	08:22	
	02	190° 03.4	180° 39.7	11.9	167° 37.4	26.0	348° 54.2	15.3	283° 31.3	05.4	Acruz	173° 05.7	63° 11.5 S	206° 57.6	11.0	163° 50.2	9.3	18.6	10.9	66°	05:14	06:13	07:05	08:11	08:23	08:39	
	03	205° 05.9	195° 42.1	12.3	182° 38.1	26.7	3° 56.8	15.3	298° 33.6	05.4	Adhara	255° 10.3	29° 00.1 S	221° 57.7	10.0	178° 18.5	9.4	29.5	10.8	64°	05:18	06:12	07:00	08:17	08:33	08:54	
	04	220° 08.4	210° 44.6	12.8	197° 38.9	27.4	18° 59.4	15.2	313° 36.0	05.4	Aldebaran	290° 46.5	16° 32.4 N	236° 57.8	09.0	192° 46.9	9.2	40.3	10.8	62°	05:20	06:11	06:56	08:23	08:42	09:06	
	05	235° 10.8	225° 47.0	13.3	212° 39.7	28.1	34° 02.1	15.1	328° 38.3	05.4		251° 57.9	08.1	207° 15.1	9.3	207° 15.1	9.3	51.1	10.8	60°	05:23	06:11	06:52	08:27	08:49	09:16	
	06	250° 13.3	240° 49.4	13.7	227° 40.4	28.8	49° 04.7	15.0	343° 40.6	05.4	Alioth	166° 18.1	55° 51.9 N	266° 58.1	07.1	221° 43.4	9.2	7° 01.9 N	10.7	N 58°	05:24	06:10	06:49	08:31	08:56	09:25	
	07	265° 15.7	255° 51.9	14.2	242° 41.2	29.5	64° 07.3	15.0	358° 42.9	05.4	Alkaid	152° 56.6	49° 13.5 N	281° 58.2	06.2	236° 11.6	9.2	12.6	10.7	59.4	56°	05:26	06:09	06:46	08:35	09:02	09:33
	08	280° 18.2	270° 54.3	14.7	257° 41.9	30.2	79° 09.9	14.9	13° 45.2	05.4	Alnair	277° 41.1	46° 52.7 S	296° 58.3	05.2	250° 39.8	9.2	23.3	10.6	54°	05:27	06:08	06:44	08:38	09:07	09:40	
	09	295° 20.7	285° 56.7	15.1	272° 42.7	30.8	94° 12.6	14.8	28° 47.5	05.4	Alnilam	275° 43.8	1° 11.8 S	311° 58.4	04.3	265° 08.0	9.1	33.9	10.6	52°	05:28	06:07	06:41	08:41	09:12	09:47	
	10	310° 23.1	300° 59.2	15.6	287° 43.5	31.5	109° 15.2	14.7	43° 49.8	05.4	Alphard	217° 53.3	8° 44.2 S	326° 58.6	03.3	279° 36.1	9.1	44.5	10.6	50°	05:29	06:07	06:39	08:44	09:16	09:53	
	11	325° 25.6	316° 01.6	16.1	302° 44.2	32.2	124° 17.8	14.7	58° 52.2	05.4		341° 58.7	02.4	294° 04.2	9.1	55.1	10.5			45°	05:31	06:05	06:34	08:50	09:25	10:05	
	12	340° 28.1	331° 04.1	11° 16.5 N	317° 45.0	9° 32.9 N	139° 20.5	7° 14.6 S	73° 54.5	22° 05.4 S	Alphecca	126° 08.8	26° 39.3 N	356° 58.8	7° 01.4 S	308° 32.3	9.1	8° 05.6 N	10.4	59.4	N 40°	05:32	06:03	06:30	08:55	09:33	10:16
	13	355° 30.5	346° 06.6	17.0	332° 45.7	33.6	154° 23.1	14.5	88° 56.8	05.4	Alpheratz	357° 41.2	29° 11.0 N	11° 59.0	00.4	323° 00.4	9.0	16.0	10.4	35°	05:32	06:01	06:27	08:59	09:40	10:25	
	14	10° 33.0	1° 09.0	17.4	347° 46.5	34.3	169° 25.7	14.4	103° 59.1	05.4	Altair	62° 06.0	8° 54.8 N	26° 59.1	6° 59.5 S	337° 28.4	8.9	26.4	10.4	30°	05:32	06:00	06:24	09:03	09:46	10:32	
	15	25° 35.5	16° 11.5	17.9	2° 47.3	35.0	184° 28.4	14.4	119° 01.4	05.4	Ankaa	353° 13.7	42° 13.0 S	41° 59.2	58.5	351° 56.3	9.0	36.8	10.3	20°	05:31	05:56	06:18	09:09	09:56	10:46	
	16	40° 37.9	31° 13.9	18.3	17° 48.0	35.7	199° 31.0	14.3	134° 03.7	05.4	Antares	112° 23.1	26° 28.0 S	56° 59.3	57.6	6° 24.3	8.9	47.1	10.2	N 10°	05:28	05:52	06:13	09:15	10:06	10:58	
	17	55° 40.4	46° 16.4	18.8	32° 48.8	36.4	214° 33.6	14.2	149° 06.0	05.4		71° 59.5	56.6	20° 52.2	8.9	57.3	10.2			0°	05:24	05:48	06:09	09:21	10:14	11:09	
	18	70° 42.9	61° 18.9	19.2	47° 49.5	37.1	229° 36.3	14.1	164° 08.4	05.4	Arcturus	145° 53.3	19° 05.5 N	86° 59.6	55.7	35° 20.1	8.8	9° 07.5 N	10.1	S 10°	05:18	05:43	06:04	09:26	10:23	11:21	
	19	85° 45.3	76° 21.4	19.7	62° 50.3	37.8	244° 38.9	14.0	179° 10.7	05.4	Atria																

2017 March 5, 6, 7 (Sun, Mon, Tue)

GMT		ARIES		VENUS		-4.5		MARS		+1.3		JUPITER		-2.4		SATURN		+0.5		STARS				SUN				MOON				Lat		Twilight		Sunrise		5		Moonrise											
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil		Sunrise		5		Moonrise	
S u n d a y	00	162° 55.9	153° 38.2	11° 40.4	N	138° 30' 5	10° 14.5	N	321° 58' 9	7° 09' 9	S	256° 13' 7	22° 05' 4	S	256° 13' 7	22° 05' 4	S	Acamar	315° 16' 7	40° 14' 6	S	177° 06' 9	6° 03' 7	S	95° 33' 5	7' 0	16° 29' 2	N	5' 7	59' 3	N 70°	04:51	08:02	07:03	08:07	08:27	09:17														
	01	177° 58.9	168° 40.9	40° 4.7		153° 31' 2	15.2		337° 01' 6	09.8		271° 16.0	05.4		271° 16.0	05.4		Acchernar	335° 25.4	57° 09' 3	S	192° 07' 0	02.8		109° 59.5	7.0	34.9	5.5	68°	04:58	08:02	06:58	08:39	09:11	10:05																
	02	193° 00.8	183° 43.6	41' 1.		168° 32.0	15.8		352° 04.2	09.7		286° 18.3	05.4		286° 18.3	05.4		Acruz	173° 05.7	63° 11' 5	S	207° 07.2	01.8		124° 25.5	6.9	40.4	5.5	66°	05:03	06:02	06:53	09:03	09:40	10:35																
	03	208° 03.3	198° 46.3	41' 4.		183° 32.7	16.5		7° 06.9	09.6		301° 20.6	05.4		301° 20.6	05.4		Adhara	255° 10.4	29° 00' 1	S	222° 07.3	00.8		138° 51.4	7.0	45.9	5.3	64°	05:07	06:02	06:50	09:22	10:03	10:58																
	04	223° 05.8	213° 49.0	41' 7.		198° 33.5	17.2		22° 09' 5	09.5		316° 22.9	05.4		316° 22.9	05.4		Aldebaran	290° 46.5	16° 32' 4	N	237° 07.4	5° 59' 9	S	153° 17.4	6' 9	51' 2	5' 3	59' 2	62°	05:11	06:02	06:46	09:38	10:20	11:16															
	05	238° 08.2	228° 51.7	42' 0.		213° 34.3	17.9		37° 12.2	09.5		331° 25.3	05.4		331° 25.3	05.4						252° 07.6	58.9		167° 43' 3	6' 9	56.5	5' 1	60°</																						

2017 March 8, 9, 10 (Wed, Thur, Fri)

GMT		ARIES		VENUS		-4.5		MARS		+1.4		JUPITER		-2.4		SATURN		+0.5		STARS			SUN		MOON				Lat	Twilight		Sunrise		Moonrise																					
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil		Sunrise		8		Moonrise		9		10	
Wednesday	8	165° 53'.3		157° 01'.3		11° 58'.9 N		139° 24'.8		11° 03'.4 N		325° 10'.2		7° 03'.8 S		259° 01'.5		22° 05'.4 S		Acamar		315° 16'.7		40° 14'.6 S		177° 17'.5		4° 53'.8 S		54° 24'.2		7.1		18° 19'.6 N		2.7		58'.5		N 70°		04:37		05:49		06:49		10:44		12:27		14:11			
		180° 55'.8		172° 04'.2		59'.1		154° 25'.5		04'.1		340° 12'.9		03'.7		274° 03'.8		05'.4		Achernar		335° 25'.4		57° 09'.3 S		192° 17'.6		52'.9		68° 50'.3		7.3		16'.9		3.0		68°		04:45		05:50		06:45		11:22		12:53		14:29					
		02 195° 58'.3		187° 07'.2		59'.3		169° 26'.3		04'.8		355° 15'.6		03'.6		289° 06'.1		05'.4		Acrux		173° 05'.7		63° 11'.6 S		207° 17'.8		51'.9		83° 16'.6		7.2		13'.9		3.0		66°		04:51		05:51		06:42		11:48		13:13		14:43					
		03 211° 00'.7		202° 10'.2		59'.5		184° 27'.1		05'.4		10° 18'.2		03'.5		304° 08'.5		05'.4		Adhara		255° 10'.4		29° 00'.2 S		222° 17'.9		50'.9		97° 42'.8		7.3		10'.9		3.1		64°		04:57		05:52		06:39		12:09		13:29		14:54					
		04 226° 03'.2		217° 13'.2		59'.6		199° 27'.8		06'.1		25° 20'.9		03'.4		319° 10'.8		05'.4		Aldebaran		290° 46'.5		16° 32'.4 N		237° 18'.1		49'.9		112° 09'.1		7.3		07'.8		3.2		58'.4		62°		05:01		05:53		06:37		12:25		13:42		15:04			
		05 241° 05'.7		232° 16'.1		59'.8		214° 28'.6		06'.8		40° 23'.6		03'.3		334° 13'.1		05'.4								252° 18'.2		49'.0		126° 35'.4		7.3		04'.6		3.4		58°		05:05		05:53		06:34		12:39		13:54		15:12					
		06 256° 08'.1		247° 19'.1		59'.9		229° 29'.3		07'.5		55° 26'.2		03'.2		349° 15'.5		05'.4		Alioth		166° 18'.1		55° 51'.9 N		267° 18'.4		48'.0		1																									

2017 March 11, 12, 13 (Sat, Sun, Mon)

	GMT	ARIES	VENUS	-4.4	MARS	+1.4	JUPITER	-2.4	SATURN	+0.5	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		11	12	13
Saturday	00	168° 50.7	160° 44.1	12° 05.3 N	140° 18.8	11° 51.4 N	328° 22.8	6° 57.2 S	261° 50.1	22° 05.4 S	Acamar	315° 16.7	40° 14.6 S	177° 28.9	3° 43.4 S	15° 50.6	10.9	10° 54.0 N	8.9	57.2	N 70°	04:22	05:35	06:35	15:53	17:32	19:08
	01	183° 53.2	175° 47.3	05.3	155° 19.5	52.0	343° 25.5	57.1	276° 52.5	05.4	Achernar	335° 25.5	57° 09.3 S	192° 29.1	42.4	30° 20.5	10.9	45.1	9.0		68°	04:32	05:38	06:33	16:04	17:37	19:08
	02	198° 55.7	190° 50.5	05.3	170° 20.3	52.7	358° 28.2	57.0	291° 54.8	05.4	Acruz	173° 05.7	63° 11.6 S	207° 29.2	41.4	44° 50.4	10.9	36.1	9.0		66°	04:39	05:40	06:31	16:13	17:41	19:07
	03	213° 58.1	205° 53.8	05.3	185° 21.0	53.4	385° 24.0	56.9	306° 57.2	05.4	Adhara	255° 10.4	29° 00.2 S	222° 29.4	40.5	59° 20.3	11.0	27.1	9.1		64°	04:46	05:42	06:29	16:20	17:44	19:07
	04	229° 00.6	220° 57.0	05.3	200° 21.8	54.0	28° 33.5	56.8	321° 59.5	05.4	Aldebaran	290° 46.5	16° 32.4 N	237° 29.6	39.5	73° 50.3	11.1	18.0	9.1		62°	04:51	05:43	06:27	16:26	17:47	19:07
	05	244° 03.1	236° 00.2	05.3	215° 22.5	54.7	43° 36.2	56.7	337° 01.9	05.4				252° 29.7	38.5	88° 20.4	11.1	08.9	9.1	57.1	60°	04:56	05:44	06:25	16:32	17:50	19:07
	06	259° 05.5	251° 03.5	05.2	230° 23.3	55.3	58° 38.9	56.6	352° 04.2	05.4	Alioth	166° 18.0	55° 51.9 N	267° 29.9	37.5	102° 50.5	11.2	9° 59.8 N	9.2		N 58°	04:59	05:45	06:24	16:36	17:52	19:07
	07	274° 08.0	266° 06.7	05.2	245° 24.0	56.0	73° 41.6	56.5	7° 06.6	05.4	Alkaid	152° 56.6	49° 13.5 N	282° 30.1	36.5	117° 20.7	11.2	50.6	9.3		56°	05:03	05:46	06:23	16:40	17:54	19:06
	08	289° 10.5	281° 10.0	05.2	260° 24.8	56.6	88° 44.6	56.4	22° 08.9	05.4	Alnair	27° 41.1	46° 52.6 S	297° 30.2	35.6	131° 50.9	11.3	41.3	9.3		54°	05:06	05:47	06:22	16:44	17:56	19:06
	09	304° 12.9	296° 13.2	05.2	275° 25.5	57.3	103° 46.9	56.3	37° 11.3	05.4	Alnilam	275° 43.8	1° 11.8 S	312° 30.4	34.6	146° 21.2	11.3	32.0	9.3	57.0	52°	05:08	05:47	06:21	16:48	17:58	19:06
	10	319° 15.4	311° 16.5	05.2	290° 26.3	58.0	118° 49.6	56.2	52° 13.6	05.4	Alphard	217° 53.3	8° 44.2 S	327° 30.6	33.6	160° 51.5	11.4	22.7	9.4		50°	05:10	05:48	06:20	16:51	17:59	19:06
	11	334° 17.9	326° 19.8	05.1	305° 27.0	58.6	133° 52.3	56.1	67° 16.0	05.4				342° 30.7	32.6	175° 21.9	11.4	13.3	9.4		45°	05:15	05:49	06:18	16:57	18:02	19:06
	12	349° 20.3	341° 23.0	12° 05.1 N	320° 27.8	11° 59.3 N	148° 55.0	6° 56.1 S	82° 18.3	22° 05.4 S	Alphecca	126° 08.7	26° 39.3 N	357° 30.9	3° 31.6 S	189° 52.3	11.5	9° 03.9 N	9.4	57.0	N 40°	05:18	05:49	06:16	17:03	18:05	19:06
	13	4° 22.8	356° 26.3	05.1	335° 28.5	59.9	163° 57.7	56.0	97° 20.7	05.4	Alpheratz	357° 41.2	29° 11.0 N	12° 31.1	30.6	204° 22.8	11.6	8° 54.5 N	9.5		35°	05:20	05:50	06:15	17:08	18:07	19:06
	14	19° 25.2	351° 29.6	05.0	350° 29.3	12° 00.6 N	179° 00.4	55.9	112° 23.0	05.4	Altair	62° 06.0	8° 54.8 N	27° 31.2	29.7	218° 53.4	11.5	45.0	9.6	56.9	30°	05:22	05:49	06:13	17:12	18:10	19:06
	15	34° 27.7	26° 32.9	05.0	5° 30.0	01.2	194° 03.0	55.8	127° 25.4	05.4	Ankaa	353° 13.7	42° 13.0 S	42° 31.4	28.7	233° 23.9	11.7	35.4	9.5		20°	05:23	05:49	06:11	17:19	18:13	19:05
	16	49° 30.2	41° 36.1	04.9	20° 30.8	01.9	209° 05.7	55.7	142° 27.7	05.4	Antares	112° 23.1	26° 28.0 S	57° 31.6	27.7	247° 54.6	11.7	25.9	9.6		N 10°	05:23	05:48	06:09	17:26	18:16	19:05
17	64° 32.6	56° 39.4	04.9	35° 31.5	02.6	224° 08.4	55.6	157° 30.1	05.4																		

2017 March 14, 15, 16 (Tue, Wed, Thur)

GMT		ARIES			VENUS			-4.3			MARS			+1.4			JUPITER			-2.4			SATURN			+0.5			STARS			SUN			MOON			Lat	Twilight		Sunrise	Moonrise																																																								
																																							Nautical			Civil		14			15			16																																																
Tuesday	14	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	03:52	05:16	06:23	20:48	22:28	24:08	N 70°	04:07	05:21	06:22	20:42	22:14	23:46	68°	04:18	05:25	06:20	20:36	22:03	23:29	66°	04:27	05:28	06:19	20:32	21:55	23:16	64°	04:35	05:31	06:18	20:28	21:47	23:04	62°	04:41	05:33	06:17	20:25	21:41	22:55	60°	04:46	05:35	06:16	20:22	21:35	22:47																									
		171° 48'.2	164° 45'.3	11° 58'.5 N	141° 12'.5	12° 38'.3 N	331° 36'.5	6° 50'.2 S	264° 39'.7	22° 05'.4 S	279° 42'.1	05°.4	346° 39'.2	50°.1	173° 05'.7	63° 11'.6 S	207° 41'.4	30°.6	10° 41'.3	13°.7	20°.3	10°.2	341° 35'.8	13°.7	1° 00'.0 S	10°.2	55°.7	341° 35'.8	13°.7	1° 00'.0 S	10°.2	55°.7	N 72°	03:52	05:16	06:23	20:48	22:28	24:08	N 70°	04:07	05:21	06:22	20:42	22:14	23:46	68°	04:18	05:25	06:20	20:36	22:03	23:29	66°	04:27	05:28	06:19	20:32	21:55	23:16	64°	04:35	05:31	06:18	20:28	21:47	23:04	62°	04:41	05:33	06:17	20:25	21:41	22:55	60°	04:46	05:35	06:16	20:22	21:35	22:47																	
		01	186° 50'.6	179° 48'.7	58°.3	156° 13'.2	38°.9	346° 39'.2	50°.1	173° 05'.7	63° 11'.6 S	207° 41'.4	30°.6	10° 41'.3	13°.7	20°.3	10°.2	341° 35'.8	13°.7	1° 00'.0 S	10°.2	55°.7	341° 35'.8	13°.7	1° 00'.0 S	10°.2	55°.7	341° 35'.8	13°.7	1° 00'.0 S	10°.2	55°.7	N 70°	04:07	05:21	06:22	20:42	22:14	23:46	N 68°	04:18	05:25	06:20	20:36	22:03	23:29	66°	04:27	05:28	06:19	20:32	21:55	23:16	64°	04:35	05:31	06:18	20:28	21:47	23:04	62°	04:41	05:33	06:17	20:25	21:41	22:55	60°	04:46	05:35	06:16	20:22	21:35	22:47																								
		02	201° 53'.1	194° 52'.2	58°.1	171° 13'.9	39°.6	1° 41'.9	50°.0	294° 44'.4	05°.4	309° 46'.8	05°.4	324° 49'.2	05°.4	252° 41'.9	27°.6	54° 19'.5	13°.8	50°.7	10°.1	55°.5	342° 43'.0	21°.7	141° 36'.6	13°.9	51°.0	9°.9	45°	05:09	05:43	06:12	20:08	21:09	22:08	N 40°	05:13	05:44	06:11	20:05	21:03	22:00	35°	05:16	05:45	06:11	20:03	20:58	21:53	30°	05:18	05:46	06:10	20:00	20:54	21:47	25°	05:21	05:46	06:08	19:56	20:47	21:37	20°	05:21	05:46	06:07	19:53	20:40	21:27	15°	05:21	05:46	06:07	19:53	20:40	21:27	10°	05:21	05:46	06:07	19:53	20:40	21:27	5°	05:21	05:46	06:07	19:53	20:40	21:27	0°	05:21	05:46	06:07	19:53	20:40	21:27
		03	216° 55'.5	209° 55'.7	57°.9	186° 14'.7	40°.2	16° 44'.6	49°.9	309° 46'.8	05°.4	324° 49'.2	05°.4	252° 41'.9	27°.6	54° 19'.5	13°.8	50°.7	10°.1	55°.5	342° 43'.0	21°.7	141° 36'.6	13°.9	51°.0	9°.9	45°	05:09	05:43	06:12	20:08	21:09	22:08	N 40°	05:13	05:44	06:11	20:05	21:03	22:00	35°	05:16	05:45	06:11	20:03	20:58	21:53	30°	05:18	05:46	06:10	20:00	20:54	21:47	25°	05:21	05:46	06:08	19:56	20:47	21:37	20°	05:21	05:46	06:07	19:53	20:40	21:27	15°	05:21	05:46	06:07	19:53	20:40	21:27	10°	05:21	05:46	06:07	19:53	20:40	21:27	5°	05:21	05:46	06:07	19:53	20:40	21:27	0°	05:21	05:46	06:07	19:53	20:40	21:27		
		04	231° 58'.0	224° 59'.2	57°.7	201° 15'.4	40°.8	31° 47'.3	49°.8	324° 49'.2	05°.4	252° 41'.9	27°.6	54° 19'.5	13°.8	50°.7	10°.1	55°.5	342° 43'.0	21°.7	141° 36'.6	13°.9	51°.0	9°.9	45°	05:09	05:43	06:12	20:08	21:09	22:08	N 40°	05:13	05:44	06:11	20:05	21:03	22:00	35°	05:16	05:45	06:11	20:03	20:58	21:53	30°	05:18	05:46	06:10	20:00	20:54	21:47	25°	05:21	05:46	06:08	19:56	20:47	21:37	20°	05:21	05:46	06:07	19:53	20:40	21:27	15°	05:21	05:46	06:07	19:53	20:40	21:27	10°	05:21	05:46	06:07	19:53	20:40	21:27	5°	05:21	05:46	06:07	19:53	20:40	21:27	0°	05:21	05:46	06:07	19:53	20:40	21:27				
		05	247° 00'.5	240° 02'.6	57°.5	216° 16'.2	41°.5	46° 50'.0	49°.7	339° 51'.5	05°.4	252° 41'.9	27°.6	54° 19'.5	13°.8	50°.7	10°.1	55°.5	342° 43'.0	21°.7	141° 36'.6	13°.9	51°.0	9°.9	45°	05:09	05:43	06:12	20:08	21:09	22:08	N 40°	05:13	05:44	06:11	20:05	21:03	22:00	35°	05:16	05:45	06:11	20:03	20:58	21:53	30°	05:18	05:46	06:10	20:00	20:54	21:47	25°	05:21	05:46	06:08	19:56	20:47	21:37	20°	05:21	05:46	06:07	19:53	20:40	21:27	15°	05:21	05:46	06:07	19:53	20:40	21:27	10°	05:21	05:46	06:07	19:53	20:40	21:27	5°	05:21	05:46	06:07	19:53	20:40	21:27	0°	05:21	05:46	06:07	19:53	20:40	21:27				
		06	262° 02'.9	255° 06'.1	57°.3	231° 16'.9	42°.1	61° 52'.7	49°.6	354° 53'.9	05°.4	252° 41'.9	27°.6	54° 19'.5	13°.8	50°.7	10°.1	55°.5	342° 43'.0	21°.7	141° 36'.6	13°.9	51°.0	9°.9	45°	05:09	05:43	06:12	20:08	21:09	22:08	N 40°	05:13	05:44	06:11	20:05	21:03	22:00	35°	05:16	05:45	06:11	20:03	20:58	21:53	30°	05:18	05:46	06:10	20:00	20:54	21:47	25°	05:21	05:46	06:08	19:56	20:47	21:37	20°	05:21	05:46	06:07	19:53	20:40	21:27	15°	05:21	05:46	06:07	19:53	20:40	21:27	10°	05:21	05:46	06:07	19:53	20:40	21:27	5°	05:21	05:46	06:07	19:53	20:40	21:27	0°	05:21	05:46	06:07	19:53	20:40	21:27				
		07	277° 05'.4	270° 09'.6	57°.1	246° 17'.7	42°.8	76° 55'.4	49°.5	369° 56'.3	05°.4	252° 41'.9	27°.6	54° 19'.5	13°.8	50°.7	10°.1	55°.5	342° 43'.0	21°.7	141° 36'.6	13°.9	51°.0	9°.9	45°	05:09	05:43	06:12	20:08	21:09	22:08	N 40°	05:13	05:44	06:11	20:05	21:03	22:00	35°	05:16	05:45	06:11	20:03	20:58	21:53	30°	05:18	05:46	06:10	20:00	20:54	21:47	25°	05:21	05:46	06:08	19:56	20:47	21:37	20°	05:21	05:46	06:07	19:53	20:40	21:27	15°	05:21	05:46	06:07	19:53	20:40	21:27	10°	05:21	05:46	06:07	19:53	20:40	21:27	5°	05:21	05:46	06:07	19:53	20:40	21:27	0°	05:21	05:46	06:07	19:53	20:40	21:27				
		08	292° 07'.9	285° 13'.1	56°.9	261° 18'.4	43°.4	91° 58'.1	49°.4	384° 58'.6	05°.4	252° 41'.9	27°.6	54° 19'.5	13°.8	50°.7	10°.1	55°.5	342° 43'.0	21°.7	141° 36'.6	13°.9	51°.0	9°.9	45°	05:09	05:43	06:12	20:08	21:09	22:08	N 40°	05:13	05:44	06:11	20:05	21:03	22:00	35°	05:16	05:45	06:11	20:03	20:58	21:53	30°	05:18	05:46	06:10	20:00	20:54	21:47	25°	05:21	05:46	06:08	19:56	20:47	21:37	20°	05:21	05:46	06:07	19:53	20:40	21:27	15°	05:21	05:46	06:07	19:53	20:40	21:27	10°	05:21	05:46	06:07	19:53	20:40	21:27	5°	05:21	05:46	06:07	19:53	20:40	21:27	0°	05:21	05:46	06:07	19:53	20:40	21:27				
		09	307° 10'.3	300° 16'.6	56°.7	276° 19'.1	44°.1	107° 00'.8	49°.3	40° 01'.0	05°.4	252° 41'.9	27°.6	54° 19'.5	13°.8	50°.7	10°.1	55°.5	342° 43'.0	21°.7	141° 36'.6	13°.9	51°.0	9°.9	45°	05:09	05:43	06:12	20:08	21:09	22:08	N 40°	05:13	05:44	06:11	20:05	21:03	22:00	35°	05:16	05:45	06:11	20:03	20:58	21:53	30°	05:18	05:46	06:10	20:00	20:54	21:47	25°	05:21	05:46	06:08	19:56	20:47	21:37	20°	05:21	05:46	06:07	19:53	20:40	21:27	15°	05:21	05:46	06:07	19:53	20:40	21:27	10°	05:21	05:46	06:07	19:53	20:40	21:27	5°	05:21	05:46	06:07	19:53	20:40	21:27	0										

2017 March 17, 18, 19 (Fri, Sat, Sun)

GMT		ARIES		VENUS		-4.2		MARS		+1.4		JUPITER		-2.4		SATURN		+0.5		STARS			SUN		MOON						Lat	Twilight		Sunrise		17		Moonrise		19													
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		03:34		05:00		06:08		00:08		01:53		03:49	
F r i d a y	00	174° 45'6	169° 02'3	11° 38'1 N	142° 05'7	13° 24'0 N	334° 51'2	6° 42'8 S	267° 30'2	22° 05'3 S	287° 30'2	22° 05'3 S	Acamar	315° 16'7	40° 14'6 S	177° 53'8	1° 21'5 S	309° 12'0	13'9	11° 58'4 S	7'6	54'4	N 70°	03:51	05:07	06:08	-	01:18	02:49																								
	01	189° 48'0	184° 06'0	37'7	157° 06'5	24'7	349° 53'9	42'7	282° 32'6	05'3	157° 06'5	24'7	Achernar	335° 25'5	57° 09'3 S	192° 54'0	20'5	323° 44'9	13'9	12° 06'0 S	7'5	68°	04:04	05:12	06:08	-	00:54	02:14																									
	02	204° 50'5	199° 09'6	37'3	172° 07'2	25'3	4° 56'6	42'6	297° 35'0	05'3	172° 07'2	25'3	Acruz	173° 05'7	63° 11'6 S	207° 54'2	19'5	338° 17'8	13'8	13'5	7'5	66°	04:14	05:17	06:08	-	00:35	01:50																									
	03	219° 53'0	214° 13'3	36'9	187° 07'9	25'9	19° 59'4	42'5	312° 37'3	05'3	187° 07'9	25'9	Adhara	255° 10'4	29° 00'2 S	222° 54'4	18'5	352° 50'6	13'9	21'0	7'4	64°	04:23	05:20	06:08	-	00:19	01:30																									
	04	234° 55'4	229° 17'0	36'6	202° 08'7	26'6	35° 02'1	42'4	327° 39'7	05'3	202° 08'7	26'6	Aldebaran	290° 46'6	16° 32'4 N	237° 54'5	17'5	7° 23'5	13'8	28'4	7'4	62°	04:30	05:23	06:07	-	00:07	01:15																									
	05	249° 57'9	244° 20'6	36'2	217° 09'4	27'2	50° 04'8	42'3	342° 42'1	05'3	217° 09'4	27'2				252° 54'7	16'6	21° 56'3	13'8	35'8	7'3	60°	04:36	05:26	06:07	23:56	-	01:02																									
	06	265° 00'4	259° 24'3	35'8	232° 10'1	27'8	65° 07'5	42'2	357° 44'5	05'3	232° 10'1	27'8	Alioth	166° 18'0	55° 51'9 N	267° 54'9	15'6	36° 29'1	13'8	43'1	7'2	N 58°	04:42	05:28	06:07	23:47	-	00:50																									
	07	280° 02'8	274° 28'0	35'4	247° 10'9	28'4	80° 10'2	42'1	12° 46'8	05'3	247° 10'9	28'4	Alkaid	152° 56'6	49° 13'6 N	282° 55'1	14'6	51° 01'9	13'8	50'3	7'2	56°	04:46	05:30	06:07	23:38	-	00:41																									
	08	295° 05'3	289° 31'7	35'0	262° 11'6	29'1	95° 12'9	42'0	27° 49'2	05'3	262° 11'6	29'1	Alnair	27° 41'0	46° 52'6 S	297° 55'3	13'6	65° 34'7	13'8	57'5	7'1	54°	04:50	05:32	06:07	23:31	-	00:32																									
	09	310° 07'7	304° 35'3	34'6	277° 12'4	29'7	110° 15'6	41'9	42° 51'6	05'3	277° 12'4	29'7	Alnilam	275° 43'8	1° 11'8 S	312° 55'4	12'6	80° 07'5	13'7	13° 04'6 S	7'1	52°	04:54	05:33	06:07	23:25	-	00:24																									
	10	325° 10'2	319° 39'0	34'2	292° 13'1	30'3	125° 18'3	41'8	57° 54'0	05'3	292° 13'1	30'3	Alphard	217° 53'3	8° 44'2 S	327° 55'6	11'6	94° 40'2	13'7	11'7	7'0	50°	04:57	05:35	06:07	23:19	-	00:17																									
11	340° 12'7	334° 42'7	33'8	307° 13'8	30'9	140° 21'1	41'7	72° 56'3	05'3	307° 13'8	30'9				342° 55'8	10'6	109° 12'9	13'7	18'7	6'9	45°	05:03	05:38	06:07	23:06	-	00:03																										
	12	355° 15'1	349° 46'4	11° 33'4 N	322° 14'6	13° 31'6 N	155° 23'8	6° 41'6 S	87° 58'7	22° 05'3 S	357° 44'5	05'3	Alphecca	126° 08'7</																																							

2017 March 20, 21, 22 (Mon, Tue, Wed)

GMT	ARIES			VENUS			MARS			JUPITER			SATURN			STARS			SUN			MOON				Lat	Twilight		Sunrise	Moonrise		
	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	20		21	22				
Monday	00	177° 43' 0	173° 31' 2	11° 04' 4	142° 58' 6	14° 08' 3	338° 06' 9	6° 35' 1	270° 21' 6	22° 05' 2	285° 25' 5	57° 09' 3	Acamar	315° 16' 8	40° 14' 6	178° 07' 0	0° 10' 3	275° 49' 0	12' 3	18° 16' 8	2' 5	54' 3	N 70°	03:34	04:52	05:54	04:13	05:18	05:51			
	01	192° 45' 4	188° 35' 0	03' 9	157° 59' 3	09' 3	353° 09' 5	35' 0	285° 25' 5	05' 2	285° 25' 5	57° 09' 3	Acnarnar	335° 25' 5	57° 09' 3	193° 07' 1	09' 4	290° 20' 3	12' 3	19' 1	2' 5	68°	03:34	04:59	05:55	03:27	04:26	05:06				
	02	207° 47' 9	203° 38' 8	03' 3	173° 00' 0	09' 9	8° 12' 4	34' 9	300° 26' 4	05' 2	300° 26' 4	57° 09' 3	Acruz	173° 05' 7	63° 11' 6	208° 07' 3	08' 4	304° 51' 6	12' 3	21' 6	2' 3	66°	04:01	05:05	05:56	02:57	03:53	04:36				
	03	222° 50' 4	218° 42' 6	02' 7	188° 00' 8	10' 5	23° 15' 1	34' 8	315° 28' 8	05' 2	315° 28' 8	57° 09' 3	Adhara	255° 10' 4	29° 00' 2	223° 07' 5	07' 4	319° 22' 9	12' 2	23' 9	2' 3	54' 4	04:11	05:09	05:57	02:35	03:30	04:13				
	04	237° 52' 8	233° 46' 4	02' 2	203° 01' 5	11' 1	38° 17' 8	34' 7	330° 31' 2	05' 2	330° 31' 2	57° 09' 3	Aldebaran	290° 46' 6	16° 32' 4	238° 07' 7	06' 4	333° 54' 1	12' 2	26' 2	2' 2	62°	04:20	05:13	05:58	02:17	03:11	03:56				
	05	252° 55' 3	248° 50' 2	01' 6	218° 02' 2	11' 7	53° 20' 5	34' 5	345° 33' 6	05' 2	345° 33' 6	57° 09' 3				253° 07' 9	05' 4	348° 25' 3	12' 2	28' 4	2' 1	60°	04:27	05:17	05:58	02:02	02:55	03:41				
	06	267° 57' 8	263° 54' 0	01' 1	233° 03' 0	12' 3	68° 23' 3	34' 5	0° 36' 0	05' 2	268° 08' 1	04' 4	Alioth	166° 18' 0	55° 51' 9	2° 56' 5	12' 2	30' 5	2' 0			N 58°	04:33	05:20	05:59	01:49	02:42	03:28				
	07	283° 00' 2	278° 57' 8	00' 5	248° 03' 7	12' 9	83° 26' 0	34' 3	15° 38' 3	05' 2	283° 08' 2	03' 4	Alkaid	152° 56' 5	49° 13' 6	17° 27' 7	12' 1	32														

2017 March 23, 24, 25 (Thur, Fri, Sat)

GMT	ARIES	VENUS			MARS	JUPITER			SATURN	STARS			SUN		MOON				Lat	Twilight		Sunrise	Moonrise					
		GHA	Dec	-4.0		GHA	Dec	+1.4		GHA	Dec	-2.4	GHA	Dec	+0.5	Name	SHA	Dec		GHA	Dec		GHA	v	Dec	d	HP	Nautical
23	T h u r s d a y	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	02:52	04:27	05:37	06:59	06:40	06:29	
		180° 40.4	178° 06.7	10° 18' 8" N	143° 51.0	14° 52.0 N	341° 23.5	6° 27.1 S	273° 14.0	22° 05.1 S	Acamar	315° 16.8	40° 14.5 S	178° 20.4	1° 00.7 N	240° 28.1	10.9	17° 31.1 S	4.0	55.7	N 70°	03:16	04:38	05:40	06:03	06:08	06:09	
		01	195° 42.9	193° 10.6	18.0	158° 51.7	52.6	356° 26.2	27.0	288° 16.4	05.1	Achernar	335° 25.5	57° 09.3 S	193° 20.5	01.7	254° 58.0	10.9	27.1	4.0	55.8	68°	03:33	04:46	05:42	05:30	05:44	05:54
		02	210° 45.3	208° 14.4	17.3	173° 52.4	53.2	11° 28.9	26.8	303° 18.8	05.1	Acruz	173° 05.7	63° 11.6 S	208° 20.7	02.7	269° 27.9	10.9	23.1	4.2		66°	03:48	04:53	05:45	05:06	05:26	05:41
		03	225° 47.8	223° 18.3	16.6	188° 53.1	53.8	26° 31.7	26.7	318° 21.2	05.1	Adhara	255° 10.5	29° 00.2 S	223° 20.9	03.7	283° 57.8	10.9	18.9	4.3		64°	03:59	04:58	05:46	04:47	05:11	05:30
		04	240° 50.3	238° 22.1	15.9	203° 53.9	54.4	41° 34.4	26.6	333° 23.6	05.1	Aldebaran	290° 46.6	16° 32.4 N	238° 21.1	04.7	298° 27.7	10.9	14.6	4.3		62°	04:09	05:03	05:48	04:31	04:59	05:21
		05	255° 52.7	253° 26.0	15.2	218° 54.6	55.0	56° 37.2	26.5	348° 26.0	05.1				253° 21.3	05.7	312° 57.6	10.8	10.3	4.5	55.9	60°	04:17	05:07	05:49	04:18	04:48	05:13
		06	270° 55.2	268° 29.8	14.5	233° 55.3	55.6	71° 39.9	26.4	3° 28.4	05.1	Allioth	166° 18.0	55° 52.0 N	268° 21.5	06.6	327° 27.4	10.9	05.8	4.5		N 58°	04:23	05:11	05:50	04:06	04:39	05:06
		07	285° 57.6	283° 33.7	13.7	248° 56.0	56.2	86° 42.6	26.3	18° 30.8	05.1	Alkaid	152° 56.5	49° 13.6 N	283° 21.7	07.6	341° 57.3	10.8	01.3	4.7		56°	04:29	05:14	05:51	03:57	04:30	04:59
		08	301° 00.1	298° 37.5	13.0	2																						

2017 March 26, 27, 28 (Sun, Mon, Tue)

GMT		ARIES		VENUS		-4.1		MARS		+1.4		JUPITER		-2.4		SATURN		+0.5		STARS			SUN		MOON					Lat	Twilight		Sunrise		26			Moonrise			27		28										
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		02:27		04:10		05:21		06:21		06:14		06:07	
26	S u n d a y	00	183° 37.8	182° 43.1	9° 23.3 N	144° 42.9	15° 34.2 N	344° 40.8	6° 18.8 S	276° 07.3	22° 04.9 S	Acamar	315° 16.8	40° 14.5 S	178° 33.9	2° 11.5 N	203° 58.5	10.3	9° 01.9 S	9.9	58.1	N 70°	02:56	04:23	05:26	06:09	06:09	06:08																									
		01	198° 40.3	197° 46.9	22.5	159° 43.6	34.7	359° 43.5	18.7	291° 09.7	04.9	Achernar	335° 25.5	57° 09.2 S	193° 34.1	12.5	218° 27.8	10.3	8° 52.0 S	9.9	58.2	68°	03:17	04:33	05:30	06:00	06:05	06:09																									
		02	213° 42.7	212° 50.8	21.7	174° 44.3	35.3	14° 46.2	18.6	306° 12.1	04.9	Acru	173° 05.7	63° 11.7 S	208° 34.3	13.5	232° 57.1	10.2	42.1	10.0	66°	03:33	04:41	05:33	05:52	06:01	06:10																										
		03	228° 45.2	227° 54.6	20.8	189° 45.0	35.9	29° 49.0	18.4	321° 14.5	04.9	Adhara	255° 10.5	29° 00.2 S	223° 34.4	14.5	247° 26.3	10.3	32.1	10.1	64°	03:47	04:47	05:36	05:45	05:58	06:10																										
		04	243° 47.7	242° 58.4	20.0	204° 45.8	36.5	44° 51.7	18.3	336° 17.0	04.9	Aldebaran	290° 46.6	16° 32.4 N	238° 34.6	15.5	261° 55.6	10.2	22.0	10.1	58.3	62°	03:57	04:53	05:38	05:39	05:55	06:11																									
		05	258° 50.1	258° 02.2	19.2	219° 46.5	37.0	59° 54.5	18.2	351° 19.4	04.9				253° 34.8	16.4	276° 24.8	10.2	11.9	10.1	60°	04:06	04:58	05:40	05:34	05:53	06:11																										
		06	273° 52.6	273° 06.0	18.3	234° 47.2	37.6	74° 57.2	18.1	6° 21.8	04.9	Alioth	166° 18.0	55° 52.0 N	268° 35.0	17.4	290° 54.0	10.2	01.8	10.3		N 58°	04:14	05:02	05:42	05:29	05:51	06:12																									
		07	288° 55.1	288° 08.9	17.5	249° 47.9	38.2	90° 00.0	18.0	21° 24.2	04.9	Alkaid	152° 56.5	49° 13.6 N	283° 35.2	18.4	305° 23.2	10.2	7° 51.5 S	10.2	58.4	56°	04:21	05:06	05:43	05:25	05:49	06:12																									
		08	303																																																		

2017 March 29, 30, 31 (Wed, Thur, Fri)

	GMT	ARIES	VENUS			-4.1	MARS			+1.5	JUPITER			-2.5	SATURN			+0.4	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec		GHA	Dec		GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	01:59	03:53	05:06	06:00	05:52	05:43		
Wednesday	00	186° 35.2	187° 14.4	8° 21.1 N	20.2	145° 34.3	16° 14.9 N		347° 58.6	6° 10.3 S	279° 01.6	22° 04.8 S			294° 04.0		Acamar	315° 16.8	40° 14.5 S	178° 47.4	3° 22.0 N	166° 21.2	8.7	4° 24.7 N	11.5	60.0	N 70°	02:35	04:07	05:12	06:07	06:07	06:09		
	01	201° 37.7	202° 18.1	20.2		160° 35.0	15.5		3° 01.4	10.2	294° 04.0	04.8					Achernar	335° 25.5	57° 09.2 S	193° 47.6	22.9	180° 48.9	8.7	36.2	11.6		68°	03:00	04:19	05:17	06:14	06:20	06:28		
	02	216° 40.2	217° 21.8	19.3		175° 35.8	16.1		18° 04.1	10.1	309° 06.4	04.8					Acruz	173° 05.7	63° 11.7 S	208° 47.8	23.9	195° 16.6	8.7	47.8	11.5		66°	03:19	04:28	05:21	06:19	06:30	06:44		
	03	231° 42.6	232° 25.5	18.4		190° 36.5	16.6		33° 06.9	09.9	324° 08.9	04.8					Adhara	255° 10.5	29° 00.2 S	223° 48.0	24.9	209° 44.3	8.6	59.3	11.4		64°	03:34	04:36	05:25	06:23	06:38	06:57		
	04	246° 45.1	247° 29.2	17.5		205° 37.2	17.2		48° 09.6	09.8	339° 11.3	04.8					Aldebaran	290° 46.6	16° 32.4 N	238° 48.1	25.8	224° 11.9	8.5	5° 10.7 N	11.5	60.1	62°	03:46	04:43	05:28	06:27	06:45	07:08		
	05	261° 47.5	262° 32.9	16.6		220° 37.9	17.7		63° 12.4	09.7	354° 13.7	04.8							253° 48.3	26.8	238° 39.4	8.6	22.2	11.4		60°	03:56	04:48	05:31	06:30	06:52	07:18			
	06	276° 50.0	277° 36.6	15.7		235° 38.6	18.3		78° 15.1	09.6	9° 16.2	04.8					Alioth	166° 18.0	55° 52.0 N	268° 48.5	27.8	253° 07.0	8.5	33.6	11.4		N 58°	04:04	04:53	05:33	06:33	06:57	07:26		
	07	291° 52.5	292° 40.3	14.8		250° 39.3	18.8		93° 17.9	09.5	24° 18.6	04.8					Alkaid	152° 56.5	49° 13.6 N	283° 48.7	28.8	267° 34.5	8.4	45.0	11.4		56°	04:12	04:58	05:36	06:36	07:02	07:33		
	08	306° 54.9	307° 44.0	13.9		265° 40.0	19.4		108° 20.7	09.4	39° 21.0	04.8					Alnair	27° 41.0	46° 52.6 S	298° 48.9	29.7	282° 01.9	8.5	56.4	11.3		54°	04:18	05:02	05:38	06:39	07:07	07:40		
	09	321° 57.4	322° 47.7	13.0		280° 40.7	20.0		123° 23.4	09.2	54° 23.4	04.8					Alnilam	275° 43.9	1° 11.8 S	313° 49.1	30.7	296° 29.4	8.4	6° 07.7 N	11.3		52°	04:24	05:05	05:39	06:41	07:11	07:45		
	10	336° 59.9	337° 51.4	12.1		295° 41.4	20.5		138° 26.2	09.1	69° 25.9	04.8					Alphard	217° 53.4	8° 44.2 S	328° 49.3	31.7	310° 56.8	8.3	19.0	11.2		50°	04:29	05:08	05:41	06:43	07:15	07:51		
	11	352° 02.3	352° 55.0	11.2		310° 42.1	21.1		153° 28.9	09.0	84° 28.3	04.8							343° 49.5	32.7	325° 24.1	8.3	30.2	11.3		45°	04:40	05:15	05:44	06:47	07:23	08:02			
	12	7° 04.8	7° 58.7	8° 10.3 N		325° 42.9	16° 21.6 N		168° 31.7	6° 08.9 S	99° 30.7	22° 04.8 S					Alphecca	126° 08.6	26° 39.4 N	358° 49.6	3° 33.6 N	339° 51.4	8.3	6° 41.5 N	11.1	60.1	N 40°	04:48	05:20	05:47	06:51	07:30	08:12		
	13	22° 07.3	23° 02.4	09.4		340° 43.6	22.2		183° 34.4	08.8	114° 33.2	04.8					Alpheratz	357° 41.2	29° 10.9 N	13° 49.8	34.6	354° 18.7	8.3	52.6	11.2	60.2	35°	04:54	05:24	05:50	06:54	07:36	08:20		
	14	37° 09.7	38° 06.1	08.5		355° 44.3	22.7		198° 37.2	08.6	129° 35.6	04.8					Altair	62° 05.9	8° 54.8 N	28° 50.0	35.6	8° 46.0	8.2	7° 03.8 N	11.1		30°	05:00	05:28	05:52	06:57	07:41	08:28		
	15	52° 12.2	53° 09.8	07.6		10° 45.0	23.3		213° 39.9	08.5	144° 38.0	04.8					Ankaa	353° 13.7	42° 12.9 S	43° 50.2	36.6	23° 13.2	8.1	14.9	11.0		20°	05:07	05:33	05:55	07:02	07:50	08:40		
	16	67° 14.6	68° 13.4	06.7		25° 45.7	23.8		228° 42.7	08.4	159° 40.4	04.8					Antares	112° 22.9	26° 28.0 S	58° 50.4	37.5	37° 40.3	8.2	25.9	11.1		N 10°	05:13	05:37	05:58	07:07	07:58	08:51		
	17	82° 17.1	83° 17.1	05.8		40° 46.4	24.4		243° 45.4	08.3	174° 42.9	04.8							73° 50.6	38.5	52° 07.5	8.1	37.0	10.9		0°	05:16	05:40	06:01	07:11	08:06	09:02			
	18	97° 19.6	98° 20.8	04.9		55° 47.1	24.9		258° 48.2	08.2	189° 45.3	04.8					Arcturus	145° 53.1	19° 05.5 N	88° 50.8	39.5	66° 34.6	8.0	47.9	11.0		S 10°	05:18	05:43	06:04	07:15	08:13	09:13		
	19	112° 22.0	113° 24.4	04.0		70° 47.8	25.5		273° 50.9	08.0	204° 47.7	04.8					Atira	107° 22.2	69° 03.1 S	103° 51.0	40.4	81° 01.6	8.0	58.9	10.8		20°	05:19	05:45	06:07	07:20	08:21	09:24		
	20	127° 24.5	128° 28.1	03.1		85° 48.5	26.0		288° 53.7	07.9	219° 50.2	04.8					Avior	234° 16.7	59° 34.3 S	118° 51.1	41.4	95° 28.6	8.0	8° 09.7 N	10.9		30°	05:18	05:46	06:10	07:25	08:31	09:37		
	21	142° 27.0	143° 31.8	02.2		100° 49.2	26.6		303° 56.4	07.8	234° 52.6	04.8					Bellatrix	278° 29.4	6° 21.6 N	133° 51.3	42.4	109° 55.6	8.0	20.6	10.7		35°	05:17	05:46	06:11	07:28	08:36	09:45		
	22	157° 29.4	158° 35.4	01.3		115° 49.9	27.1		318° 59.2	07.7	249° 55.0	04.8					Betelgeuse	270° 58.6	7° 24.3 N	148° 51.5	43.4	124° 22.6	7.9	31.3	10.8		40°	05:15	05:46	06:13	07:31	08:43	09:53		
	23	172° 31.9	173° 39.1	00.4		130° 50.7	27.7		334° 02.0	07.6	264° 57.5	04.7							163° 51.7	44.3	138° 49.5	7.8	42.1	10.6		45°	05:12	05:46	06:15	07:35	08:50	10:03			
Thursday	00	187° 34.4	188° 42.7	7° 59.5 N	20.2	145° 51.4	16° 28.2 N		349° 04.7	6° 07.4 S	279° 59.9	22° 04.7 S					Canopus	263° 55.1	52° 42.8 S	178° 51.9	3° 45.3 N	153° 16.3	7.9	8° 52.7 N	10.6	60.2	S 50°	05:08	05:45	06:18	07:40	08:59	10:16		
	01	202° 36.8	203° 46.4	58.6		160° 52.1	28.8		4° 07.5	07.3	295° 02.3	04.7					Capella	280° 30.8	46° 00.8 N	193° 52.1	46.3	167° 43.2	7.8	9° 03.3 N	10.6		52°	05:06	05:46	06:19	07:43	09:03	10:22		
	02	217° 39.3	218° 50.0	57.6		175° 52.8	29.3		19° 10.2	07.2	310° 04.8	04.7					Deneb	49° 29.9	45° 20.3 N	208° 52.3	47.2	182° 10.0	7.7	13.9	10.5		54°	05:04	05:45	06:20	07:45	09:07	10:28		
	03	232° 41.8	233° 53.7	56.7		190° 53.5	29.9		34° 13.0	07.1	325° 07.2	04.7					Denebola	182° 30.8	14° 28.5 N	223° 52.4	48.2	196° 36.7	7.7	24.4	10.5		56°	05:01	05:44	06:21	07:48	09:12	10:35		
	04	247° 44.2	248° 57.3	55.8		205° 54.2	30.4		49° 15.7	07.0	340° 09.6	04.7					Diphda	348° 53.7	17° 53.7 S	238° 52.6	49.2	211° 03.4	7.7	34.9	10.3	60.3	58°	04:58	05:44	06:23	07:51	09:18	10:43		
	05	262° 46.7	264° 01.0	54.9		220° 54.9	31.0		64° 18.5	06.8	355° 12.1	04.7							253° 52.8	50.2	225° 30.1	7.6	45												

2017 April 1, 2, 3 (Sat, Sun, Mon)

GMT		ARIES		VENUS		-4.2		MARS		+1.5		JUPITER		-2.5		SATURN		+0.4		STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise													
																														Nautical		Civil			1		Moonrise		3								
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name			SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°	01:23	03:34	04:50	05:30	-	-
S a t u r d a y	00	189° 32'.6	191° 35'.2	7° 15'.6 N	146° 25'.3	16° 54'.4 N	351° 17'.0	6° 01'.7 S	281° 56'.8	22° 04'.6 S	Acamar	315° 16'.8	40° 14'.5 S	179° 00'.8	4° 31'.8 N	126° 03'.3	6'.2	15° 56'.9 N	6'.5	60'.0	N 70°	02:12	03:51	04:58	06:14	06:27	07:06																				
	01	204° 35'.1	206° 38'.7	14'.6	161° 26'.0	54'.9	6° 19'.7	01'.6	296° 59'.3	04'.6	Achernar	335° 25'.5	57° 09'.2 S	194° 01'.0	32'.7	140° 28'.5	6'.2	16° 03'.4 N	6'.4	68°	02:42	04:05	05:04	06:43	07:09	07:56																					
	02	219° 37'.6	221° 42'.2	13'.7	176° 26'.7	55'.4	21° 22'.5	01'.4	312° 01'.7	04'.6	Acruz	173° 05'.6	63° 11'.7 S	209° 01'.2	33'.7	154° 53'.7	6'.2	09'.8	6'.4	66°	03:03	04:16	05:10	07:05	07:38	08:28																					
	03	234° 40'.0	236° 45'.7	12'.8	191° 27'.4	56'.0	36° 25'.3	01'.3	327° 04'.2	04'.6	Adhara	255° 10'.5	29° 00'.2 S	224° 01'.4	34'.7	169° 18'.9	6'.1	16'.2	6'.2	64°	03:20	04:25	05:14	07:23	08:00	08:51																					
	04	249° 42'.5	251° 49'.3	11'.9	206° 28'.1	56'.5	51° 28'.0	01'.2	342° 06'.6	04'.6	Aldebaran	290° 46'.6	16° 32'.4 N	239° 01'.6	35'.6	183° 44'.0	6'.1	22'.4	6'.0	62°	03:34	04:32	05:18	07:38	08:17	09:10																					
	05	264° 45'.0	266° 52'.8	11'.0	221° 28'.8	57'.1	66° 30'.8	01'.1	357° 09'.0	04'.6		254° 01'.7	36'.6	198° 09'.1	6'.2	28'.4	6'.0			60°	03:45	04:39	05:22	07:50	08:32	09:25																					
	06	279° 47'.4	281° 56'.3	10'.1	236° 29'.5	57'.6	81° 33'.5	00'.9	12° 11'.5	04'.6	Alioth	166° 18'.0	55° 52'.0 N	269° 01'.9	37'.6	212° 34'.3	6'.0	34'.4	5'.9		N 58°	03:55	04:45	05:25	08:01	08:44	09:38																				
	07	294° 49'.9	296° 59'.8	09'.1	251° 30'.2	58'.1	96° 36'.3	00'.8	27° 13'.9	04'.6	Alkaid	152° 56'.5	49° 13'.6 N	284° 02'.1	38'.5	226° 59'.3	6'.1																														

2017 April 4, 5, 6 (Tue, Wed, Thur)

GMT		ARIES		VENUS		-4.3		MARS		+1.5		JUPITER		-2.5		SATURN		+0.4		STARS				SUN				MOON				Lat	Twilight		Sunrise		4		Moonrise		5		6										
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		-		03:15		04:34		-		09:19		11:22	
4	00	192° 30'.1	195° 41'.1	6° 10'.2 N	147° 15'.8	17° 32'.4 N	354° 35'.7	5° 53'.0 S	284° 53'.1	22° 04'.5 S	Acamar	315° 16'.8	40° 14'.5 S	179° 14'.0	5° 40'.9 N	84° 15'.6	7.0	18° 39'.8 N	2.2	58'.7	N 70°	01:44	03:35	04:44	08:25	10:05	11:49																										
	01	207° 32'.0	210° 44'.4	09.3	162° 16'.5	32.9	9° 38'.4	52.8	299° 55'.5	04'.5	Achernar	335° 25'.5	57° 09'.2 S	194° 14'.2	41.8	98° 41'.6	7.0	37'.6	2.3	58'.6	68°	02:21	03:50	04:52	07:00	13:35	12:09																										
	02	222° 35'.0	225° 47'.7	08.4	177° 17'.2	33.4	24° 41'.2	52.7	314° 58'.0	04'.5	Acruz	173° 05'.6	63° 11'.7 S	209° 14'.4	42.8	113° 07'.6	7.1	35.3	2.4	66°	02:47	04:03	04:58	09:36	10:58	12:25																											
	03	237° 37.4	240° 50.9	07.5	192° 17.9	33.9	39° 43.9	52.6	330° 00.4	04.5	Adhara	255° 10.5	29° 00.2 S	224° 14.6	43.7	127° 33.7	7.1	32.9	2.6	64°	03:06	04:13	05:04	09:58	11:15	12:38																											
	04	252° 39.9	255° 54.2	06.6	207° 18.5	34.4	54° 46.7	52.5	345° 02.9	04.4	Aldebaran	290° 46.6	16° 32.4 N	239° 14.8	44.7	141° 59.8	7.1	30.3	2.6	62°	03:22	04:22	05:09	10:15	11:30	12:49																											
	05	267° 42.4	270° 57.5	05.7	222° 19.2	35.0	69° 49.5	52.3	0° 05.3	04.4				254° 14.9	45.6	156° 25.9	7.2	27.7	2.8	58'.5	60°	03:34	04:29	05:13	10:29	11:42	12:59																										
	06	282° 44.8	286° 00.8	04.8	237° 19.9	35.5	84° 52.2	52.2	15° 07.8	04.4	Alioth	166° 18.0	55° 52.0 N	269° 15.1	46.6	170° 52.1	7.3	24.9	2.8		N 58°	03:45	04:36	05:17	10:42	11:52	13:07																										
	07	297° 47.3	301° 04.1	03.9	252° 20.6	36.0	99° 55.0	52.1	30° 10.2	04.4	Alkaid	152° 56.5	49° 13.6 N	284° 15.3	47.5	185° 18.4	7.3	22.1	3.0		56°	03:54	04:41	05:20	10:52	12:01	13:14																										
	08	312° 4																																																			

2017 April 7, 8, 9 (Fri, Sat, Sun)

GMT		ARIES			VENUS			-4.4			MARS			+1.5			JUPITER			-2.5			SATURN			+0.4			STARS			SUN			MOON			Lat	Twilight		Sunrise		Moonrise																	
		GHA			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			GHA			v			Dec			d			HP			Nautical		Civil		7			8		9	
F r i d a y	00	195° 27.5	199° 29.0	5° 08' 0.0 N	148° 05' 8	18° 08.9 N	357° 54.5	5° 44' 2 S	287° 50.2	22° 04.3 S	Acamar	315° 16.8	40° 14.5 S	179° 26.9	6° 49.1 N	45° 47.0	11.1	11° 51.8 N	8.5	57.0	N 70°	01:07	03:18	04:29	13:31	15:09	16:45																																	
	01	210° 29.9	214° 32.0	07.2	163° 06.5	09.4	12° 57.3	44.1	302° 52.7	04.3	Achernar	335° 25.5	57° 09.2 S	194° 27.1	50.0	60° 17.1	11.1	43.3	8.5	68°	01:59	03:36	04:39	13:44	15:16	16:46																																		
	02	225° 32.4	229° 35.0	06.3	178° 07.2	09.9	28° 00.0	44.0	317° 55.2	04.3	Acruha	173° 05.7	63° 11.7 S	209° 27.3	50.9	74° 47.2	11.2	34.8	8.6	56.9	66°	02:29	03:50	04:47	13:54	15:22	16:48																																	
	03	240° 34.9	244° 38.0	05.5	193° 07.8	10.4	43° 02.8	43.8	332° 57.6	04.3	Adhara	255° 10.5	29° 00.2 S	224° 27.5	51.9	89° 17.4	11.3	26.2	8.7	64°	02:51	04:02	04:53	14:03	15:27	16:49																																		
	04	255° 37.3	259° 41.0	04.7	208° 08.5	10.9	58° 05.6	43.7	348° 00.1	04.3	Aldebaran	290° 46.7	16° 32.4 N	239° 27.6	52.8	103° 47.7	11.3	17.5	8.7	62°	03:09	04:11	04:59	14:10	15:31	16:50																																		
	05	270° 39.8	274° 44.1	03.9	223° 09.2	11.4	73° 08.3	43.6	3° 02.6	04.3				254° 27.8	53.7	118° 18.0	11.3	08.8	8.7	60°	03:23	04:20	05:04	14:17	15:34	16:51																																		
	06	285° 42.3	289° 47.1	03.0	238° 09.9	11.9	88° 11.1	43.5	18° 05.0	04.3	Alioth	166° 18.0	55° 52.0 N	269° 28.0	54.7	132° 48.3	11.5	00.1	8.8	N 58°	03:35	04:27	05:08	14:22	15:37	16:51																																		
	07	300° 44.7	304° 50.1	02.2	253° 10.6	12.4	103° 13.9	43.3	33° 07.5	04.3	Alkaid	152° 56.5	49° 13.6 N	284° 28.2	55.6	147° 18.8	11.4	10° 51.3 N	8.9	56.8	56°	03:45	04:33	05:12	14:27	15:40	16:52																																	
	08	315° 47.2	319° 53.1	01.4	268° 11.3	12.9	118° 16.6	43.2	48° 10.0	04.3	Alnair	27° 40.9	46° 5																																															

2017 April 10, 11, 12 (Mon, Tue, Wed)

	GMT	ARIES	VENUS	-4.4	MARS	+1.5	JUPITER	-2.5	SATURN	+0.4	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	04:01	18:23	20:02	21:43
Monday	10 00	198° 24'9	202° 57'0	4° 11'6 N	148° 55'3	18° 43'9 N	1° 13'4	5° 35'5 S	300° 48'4	22° 04'1 S	Acamar	315° 16'8	40° 14'5 S	179° 39'4	7° 56'2 N	11° 48'7	13'9	0° 13'5 N	10'2	55'5	N 70°	-	02:31	04:01	18:23	20:02	21:43
	01	213° 27'3	217° 59'7	10'9	163° 56'0	44'4	16° 16'2	35'3	325° 25'5	57° 09'2 S	Achernar	335° 25'5	56° 16'2 S	194° 39'5	57'1	26° 21'6	13'8	03'3	10'2	68°	01:31	03:20	04:26	18:15	19:51	21:24	
	02	228° 29'8	233° 02'5	10'2	178° 56'7	44'8	31° 19'0	35'2	320° 53'3	04'1	Acruz	173° 05'7	63° 11'7 S	209° 39'7	58'0	40° 54'4	14'0	0° 06'9 S	10'2	66°	02:10	03:36	04:35	18:12	19:35	20:58	
	03	243° 32'3	248° 05'2	09'4	193° 57'4	45'3	46° 21'7	35'1	335° 55'8	04'1	Adhara	255° 10'6	29° 00'2 S	224° 39'9	58'9	55° 27'4	13'9	17'1	10'1	64°	02:36	03:50	04:43	18:10	19:29	20:48	
	04	258° 34'7	263° 07'9	08'7	208° 58'1	45'8	61° 24'5	35'0	350° 58'3	04'1	Aldebaran	290° 46'7	16° 32'4 N	239° 40'0	59'9	70° 00'3	13'9	27'2	10'2	55'4	62°	02:56	04:01	04:49	18:08	19:24	20:39
	05	273° 37'2	278° 10'7	08'0	223° 58'7	46'3	76° 27'2	34'9	6° 00'8	04'1				254° 40'2	8° 00'8 N	84° 33'2	14'0	37'4	10'2	60°	03:11	04:10	04:55	18:06	19:20	20:32	
	06	288° 39'7	293° 13'4	07'2	238° 59'4	46'7	91° 30'0	34'7	21° 03'3	04'1	Alioth	166° 18'0	55° 52'0 N	269° 40'4	01'7	99° 06'2	14'0	47'6	10'1		N 58°	03:24	04:18	05:00	18:04	19:16	20:26
	07	303° 42'1	308° 16'1	06'5	254° 00'1	47'2	106° 32'8	34'6	36° 05'7	04'1	Alkaid	152° 56'5	49° 13'7 N	284° 40'5	02'6	113° 39'2	14'0	57'7	10'2		56°	03:35	04:25	05:04	18:03	19:12	20:20
	08	318° 44'6	323° 18'8	05'8	269° 00'1	47'7	121° 35'5	34'5	51° 08'2	04'1	Alnair	27° 40'9	46° 52'5 S	299° 40'7	03'6	128° 12'2	14'0	1° 07'9 S	10'1		54°	03:45	04:31	05:08	18:01	19:09	20:15
	09	333° 47'1	338° 21'5	05'1	284° 01'5	48'2	136° 38'3	34'4	66° 10'7	04'1	Alnilam	275° 43'9	1° 11'8 S	314° 40'9	04'5	142° 45'2	14'0	18'0	10'1		52°	03:53	04:37	05:12	18:00	19:06	20:11
	10	348° 49'5	353° 24'2	04'4	299° 02'2	48'6	151° 41'1	34'3	81° 13'2	04'1	Alphard	217° 53'4	8° 44'2 S	329° 41'0	05'4	157° 18'2	14'0	28'1	10'2	55'3	50°	04:00	04:42	05:15	17:59	19:04	20:07
	11	3° 52'0	8° 26'9	03'6	314° 02'8	49'1	166° 43'8	34'1	96° 15'7	04'0				344° 41'2	06'3	171° 51'2	14'1	38'3	10'1		45°	04:16	04:52	05:22	17:57	18:58	19:58
	12	18° 54'4	23° 29'6	4° 02'9 N	329° 03'5	18° 49'6 N	181° 46'6	5° 34'0 S	111° 18'2	22° 04'0 S	Alphecca	126° 08'6	26° 39'4 N	359° 41'4	8° 07'2 N	186° 24'3	14'1	1° 48'4 S	10'0	55'3	N 40°	04:27	05:00	05:28	17:55	18:53	19:51
	13	33° 56'9	38° 32'3	02'2	344° 04'2	50'0	196° 49'3	33'9	126° 20'6	04'0	Alpheratz	357° 41'1	29° 10'9 N	14° 41'5	08'2	200° 57'4	14'0	58'4	10'1		35°</						

2017 April 13, 14, 15 (Thur, Fri, Sat)

	GMT	ARIES	VENUS	-4.5	MARS	+1.5	JUPITER	-2.5	SATURN	+0.4	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		13	14	15
Thurs day	13 00	201° 22.3	206° 04'.5	3° 22'.8 N	149° 44'.4	19° 17'.3 N	4° 32'.3	5° 26'.8 S	293° 47'.5	22° 03'.9 S	Acamar	315° 16'.8	40° 14'.5 S	179° 51'.2	9° 02'.1 N	339° 32'.5	13'.9	11° 05'.2 S	8'.0	54'.4	N 70°	-	02:06	03:44	23:27	-	01:19
	01	216° 24.8	221° 06'.9	22.2	164° 45'.1	17.8	19° 35'.0	26.7	308° 50'.0	03.9	Achernar	335° 25'.5	57° 09'.1 S	194° 51'.3	03.0	354° 05'.4	13.9	13.2	8'.1		68°	00:54	03:04	04:13	22:35	23:58	00:30
	02	231° 27.2	236° 09'.4	21.6	179° 45'.8	18.2	34° 37'.8	26.6	323° 52'.5	03.9	Acruz	173° 05'.7	63° 11'.8 S	209° 51'.5	03.9	8° 38'.3	13.9	21.3	7'.9		66°	01:48	03:23	04:23	22:18	23:36	24:47
	03	246° 29.7	251° 11'.9	21.0	194° 46'.4	18.7	49° 40'.5	26.4	338° 55'.0	03.9	Adhara	255° 10'.6	29° 00'.2 S	224° 51'.7	04.8	23° 11'.2	14.0	29.2	7'.9		64°	02:19	03:38	04:32	22:04	23:18	24:25
	04	261° 32.1	266° 14'.3	20.4	209° 47'.1	19.1	64° 43'.3	26.3	353° 57'.4	03.9	Aldebaran	290° 46'.7	16° 32'.4 N	239° 51'.8	05.7	37° 44'.2	13.8	37.1	7'.9		62°	02:42	03:50	04:40	21:53	23:03	24:08
	05	276° 34.6	281° 16'.8	19.8	224° 47'.8	19.6	79° 46'.1	26.2	8° 59'.9	03.9				254° 52'.0	06.6	52° 17'.0	13.9	45.0	7'.8		60°	03:00	04:00	04:46	21:43	22:50	23:53
	06	291° 37.1	296° 19'.2	19.2	239° 48'.5	20.0	94° 48'.8	26.1	24° 02'.4	03.9	Alioth	166° 18'.0	55° 52'.1 N	269° 52'.1	07.5	66° 49.9	13.9	52.8	7'.7		N 58°	03:14	04:09	04:52	21:34	22:40	23:41
	07	306° 39'.5	311° 21'.6	18.5	254° 49'.2	20.5	109° 51'.6	26.0	39° 04'.9	03.9	Alkaid	152° 56'.5	49° 13'.7 N	284° 52'.3	08.4	81° 22'.8	13.8	12° 00'.5 S	7'.7	54'.3	56°	03:26	04:17	04:57	21:27	22:30	23:30
	08	321° 42.0	326° 24'.1	17.9	269° 49'.8	21.0	124° 54'.																				

2017 April 16, 17, 18 (Sun, Mon, Tue)

	GMT	ARIES		VENUS		-4.5		MARS		+1.5		JUPITER		-2.5		SATURN		+0.4		STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	Nautical	Civil	16	17	18								
Sunday	16 00	204° 19.7	208° 51'.8	2° 42'.8 N	150° 33'.0	19° 49'.2 N	7° 50'.9	5° 18'.3 S	296° 47'.5	22° 03'.7 S	Acamar	315° 16'.8	40° 14'.4 S	180° 02'.3	10° 06'.6 N	306° 17'.8	12'.5	18° 05'.1 S	3'.2	54'.1	N 72°	-	01:36	03:27	-	-	-	N 70°	-	02:19	03:45	01:59	03:16	04:00		
	01	219° 22'.2	223° 54'.0	42'.3	165° 33'.7	49'.6	22° 53'.7	18'.1	311° 50'.0	03'.7	Achernar	335° 25'.5	57° 09'.1 S	195° 02'.4	07'.5	320° 49'.3	12'.6	08'.3	3'.1	68°	68°	-	02:48	04:00	01:16	02:21	03:08	68°	-	02:49	04:00	01:16	02:21	03:08		
	02	234° 24'.6	238° 56'.2	41'.8	180° 34'.4	50'.0	37° 56'.4	18'.0	326° 52'.5	03'.7	Acruv	173° 05'.7	63° 11'.8 S	210° 02'.6	08'.4	335° 20'.9	12'.5	11'.4	3'.0	66°	01:22	03:09	04:12	00:47	01:48	02:36	66°	01:22	03:09	04:12	00:47	01:48	02:36			
	03	249° 27'.1	253° 58'.4	41'.3	195° 35'.1	50'.5	52° 59'.2	17'.9	341° 55'.0	03'.7	Adhara	255° 10'.6	29° 00'.2 S	225° 02'.7	09'.3	349° 52'.4	12'.5	14'.4	2'.9	64°	02:01	03:25	04:22	00:25	01:24	02:12	64°	02:01	03:25	04:22	00:25	01:24	02:12			
	04	264° 29'.6	269° 00'.6	40'.8	210° 35'.7	50'.9	68° 01'.9	17'.8	356° 57'.5	03'.7	Aldebaran	290° 46'.7	16° 32'.4 N	240° 02'.9	10'.2	4° 23'.9	12'.4	17'.3	2'.8	62°	02:27	03:39	04:30	00:08	01:05	01:53	62°	02:27	03:39	04:30	00:08	01:05	01:53			
	05	279° 32'.0	284° 02'.7	40'.3	225° 36'.4	51'.3	83° 04'.7	17'.7	12° 00'.0	03'.6		255° 03'.0	11'.1	18° 55'.3	12'.5	20'.1	2'.8			60°	02:47	03:50	04:37	-	00:49	01:38	60°	02:47	03:50	04:37	-	00:49	01:38			
	06	294° 34'.5	299° 04'.9	39'.8	240° 37'.1	51'.8	98° 07'.4	17'.6	27° 02'.5	03'.6	Alioth	166° 18'.0	55° 52'.1 N	270° 03'.2	12'.0	33° 26'.8	12'.4	22'.9	2'.6	N 58°	03:03	04:00	04:44	-	00:36	01:24	58°	03:03	04							

	GMT	ARIES	VENUS	-4.5	MARS	+1.6	JUPITER	-2.4	SATURN	+0.3	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		19	20	21
Wednesday	19 00	207° 17.1	211° 20.1	2° 11.9 N	151° 21.2	20° 19.4 N	11° 09.2	5° 09.9 S	299° 48.5	22° 03.4 S	Acamar	315° 16.8	40° 14.4 S	180° 12.5	11° 09.7 N	271° 28.7	11.6	18° 11.4 S	3.2	55.0	N 70°	-	01:56	03:30	04:17	04:22	04:24
	01	222° 19.6	226° 22.0	11.6	166° 21.9	19.8	26° 11.9	09.8	314° 51.0	03.4	Achernar	335° 25.5	57° 09.1 S	195° 12.6	10.6	285° 59.3	11.5	08.2	3.3	55.1	68°	-	02:30	03:47	03:37	03:54	04:04
	02	237° 22.1	241° 23.9	11.2	181° 22.5	20.2	41° 14.7	09.7	329° 53.5	03.4	Acruz	173° 05.7	63° 11.8 S	210° 12.8	11.4	300° 29.8	11.6	04.9	3.3		66°	00:46	02:54	04:00	03:10	03:32	03:48
	03	252° 24.5	256° 25.9	10.8	196° 23.2	20.6	56° 17.4	09.6	344° 56.0	03.4	Adhara	255° 10.6	29° 00.2 S	225° 12.9	12.3	315° 00.4	11.5	01.6	3.5		64°	01:41	03:13	04:11	02:48	03:15	03:36
	04	267° 27.0	271° 27.8	10.5	211° 23.9	21.0	71° 20.2	09.5	359° 58.5	03.4	Aldebaran	290° 46.7	16° 32.4 N	240° 13.0	13.2	329° 30.9	11.6	17° 58.1 S	3.5		62°	02:12	03:28	04:20	02:31	03:01	03:25
	05	282° 29.4	286° 29.7	10.1	226° 24.5	21.4	86° 22.9	09.3	15° 01.1	03.4		255° 13.2	14.0	255° 13.2	14.0	344° 01.5	11.5	54.6	3.7	55.2	60°	02:35	03:41	04:29	02:17	02:49	03:15
	06	297° 31.9	301° 31.6	09.8	241° 25.2	21.8	101° 25.7	09.2	30° 03.6	03.4	Alioth	166° 18.0	55° 52.1 N	270° 13.3	14.9	358° 32.0	11.5	50.9	3.7		N 58°	02:52	03:51	04:36	02:05	02:39	03:07
	07	312° 34.4	316° 33.5	09.4	256° 25.9	22.2	116° 28.4	09.1	45° 06.1	03.4	Alkaid	152° 56.4	49° 13.7 N	285° 13.4	15.8	13° 02.5	11.6	47.2	3.8		56°	03:07	04:00	04:42	01:55	02:30	03:00
	08	327° 36.8	331° 35.4	09.1	271° 26.5	22.6	131° 31.2	09.0	60° 08.6	03.4	Alnair	27° 40.8	46° 52.5 S	300° 13.6	16.6	27° 33.1	11.5	43.4									

2017 April 22, 23, 24 (Sat, Sun, Mon)

GMT	ARIES	VENUS			MARS	JUPITER			SATURN	STARS			SUN		MOON				Lat	Twilight		Sunrise	Moonrise					
		GHA	GHA	Dec		GHA	Dec	GHA		Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA		v	Dec		d	HP	Nautical	Civil	22	23
22	S a t u r d a y	00	210° 14.5	213° 30.7	1° 50.4 N	152° 08.9	20° 47.9 N	14° 27.0	5° 01.8 S	302° 50.3	22° 03.2 S	Acamar	315° 16.8	40° 14.4 S	180° 21.8	12° 11.1 N	235° 53.2	11.0	10° 42.2 S	9.1	57.3	N 72°	-	-	02:49	04:39	04:31	04:23
		01	225° 17.0	228° 32.4	50.1	167° 09.6	48.3	29° 29.8	01.7	317° 52.9	03.2	Achernar	335° 25.5	57° 09.1 S	195° 21.9	12.0	250° 23.2	11.0	33.1	9.2	57.4	N 70°	-	01:28	03:14	04:23	04:22	04:21
		02	240° 19.5	243° 34.1	49.9	182° 10.3	48.7	44° 32.5	01.6	332° 55.4	03.2	Acruz	173° 05.7	63° 11.8 S	210° 22.0	12.8	264° 53.2	11.0	23.9	9.3	66°	-	02:39	03:48	04:00	04:09	04:18	
		03	255° 21.9	258° 35.8	49.7	197° 10.9	49.1	59° 35.3	01.5	347° 57.9	03.2	Adhara	255° 10.6	29° 00.1 S	225° 22.1	13.7	279° 23.2	11.0	14.6	9.3	64°	01:17	03:00	04:01	03:51	04:04	04:16	
		04	270° 24.4	273° 37.5	49.4	212° 11.6	49.5	74° 38.0	01.4	3° 00.5	03.2	Aldebaran	290° 46.7	16° 32.4 N	240° 22.3	14.5	293° 53.2	11.0	05.3	9.4	57.5	62°	01:55	03:17	04:11	03:44	04:00	04:15
		05	285° 26.9	288° 39.1	49.2	227° 12.2	49.9	89° 40.7	01.2	18° 03.0	03.2				255° 22.4	15.3	308° 23.2	11.0	9° 55.9 S	9.4	60°	02:21	03:31	04:20	03:37	03:56	04:14	
		06	300° 29.3	303° 40.8	49.0	242° 12.9	50.2	104° 43.5	01.1	33° 05.5	03.2	Alioth	166° 18.0	55° 52.1 N	270° 22.5	16.2	322° 53.2	10.9	46.5	9.5	57.6	N 58°	02:41	03:42	04:28	03:31	03:53	04:13
		07	315° 31.8	318° 42.5	48.8	257° 13.5	50.6	119° 46.2	01.0	48° 08.1	03.2	Alkaid	152° 56.4	49° 13.7 N	285° 22.6	17.0	337° 23.1	11.0	37.0	9.6	56°	02:57	03:52	04:35	03:26	03:50	04:13	
		08	330° 34.3	333° 44.2	48.5	272° 14.2	51.0	134° 49.0	00.9	63° 10.6	03.2	Alnair	27° 40.8	46° 52.5 S	300° 22.7	17.9	351° 53.1	10.9	27.4	9.7	54°							

2017 April 25, 26, 27 (Tue, Wed, Thur)

GMT	ARIES			VENUS			-4.5			MARS			+1.6			JUPITER			-2.4			SATURN			+0.3			STARS			SUN			MOON			Lat	Twilight		Sunrise	Moonrise		
	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°																			

2017 April 28, 29, 30 (Fri, Sat, Sun)

GMT	ARIES	VENUS	-4.5	MARS	+1.6	JUPITER	-2.4	SATURN	+0.3	STARS			SUN		MOON				Lat	Twilight		Sunrise	Moonrise				
		GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	28	30			
28 00 01 02 03 04 05 06 07 08 09 10 11	F r i d a y	216° 09.4	217° 05.7	1° 33'.8 N	153° 43'.1	21° 39.9 N	21° 00'.8	4° 46'.5 S	308° 56'.8	22° 02'.8 S	Acamar	315° 16'.8	40° 14'.4 S	180° 37.1	14° 08'.5 N	158° 16'.8	5.3	15° 00'.0 N	7.8	61.0	N 70°	-	-	02:07	03:46	03:16	-
		231° 11'.8	232° 07.0	33'.8	168° 43'.8	21° 30'.2	40'.2	36° 03'.5	46'.4	323° 59'.3	02'.8	Achernar	335° 25'.5	57° 09'.0 S	195° 37.2	09'.2	172° 41'.1	5.3	07.8	7.8	68°	-	01:25	03:06	04:46	05:08	05:44
		246° 14'.3	247° 08.3	33'.8	183° 44'.4	40'.6	51° 06'.3	46'.3	339° 01'.9	02'.8	Acruz	173° 05'.7	63° 11'.8 S	210° 37.3	10'.0	187° 05'.4	5.2	15.6	7.6	66°	-	02:06	03:25	05:05	05:33	06:16	
		261° 16'.8	262° 09.6	33'.9	198° 45'.1	40'.9	66° 09'.0	46'.2	354° 04'.5	02'.8	Adhara	255° 10'.7	29° 00'.1 S	225° 37.4	10'.8	201° 29'.6	5.1	23.2	7.5	64°	-	02:34	03:40	05:21	05:53	06:40	
		276° 19'.2	277° 10'.9	33'.9	213° 45'.7	41'.2	81° 11'.7	46'.1	9° 07'.0	02'.7	Aldebaran	290° 46'.7	16° 32'.4 N	240° 37.5	11'.6	215° 53'.7	5.2	30.7	7.4	62°	01:15	02:54	03:52	05:34	06:10	06:59	
		291° 21'.7	292° 12.2	33'.9	228° 46'.4	41'.6	96° 14'.4	46'.0	24° 09'.6	02'.7				255° 37.6	12.4	230° 17'.9	5.1	38.1	7.3	60°	01:52	03:11	04:03	05:45	06:24	07:14	
		306° 24'.2	307° 13'.5	33'.9	243° 47'.0	41'.9	111° 17'.2	45'.9	39° 12'.1	02'.7	Alioth	166° 18'.0	55° 52'.1 N	270° 37.7	13'.2	244° 42'.0	5.0	45.4	7.2	58°	01:58	03:25	04:12	05:55	06:36	07:27	
		321° 26'.6	322° 14'.7	33'.9	258° 47'.7	42'.2	126° 19'.9	45'.8	54° 14'.7	02'.7	Alkaid	152° 56'.4	49° 13'.7 N	285° 37.8	14'.0	259° 06'.0	5.1	52.6	7.0	56°	02:37	03:37	04:20	06:04	06:46	07:39	
		336° 29'.1	337° 16'.0	33'.9	273° 48'.3	42'.6	141° 22'.6	45'.6	69° 17'.2	02'.7	Alnair	277° 40'.7	46° 52'.4 S	300° 37.8	14.7	273° 30'.1	5.0	59.6	7.0	54°	02:53	03:47	04:28	06:11	06:56	07:49	
		351° 31'.5	352° 17.3	33'.9	288° 49'.0	42'.9	156° 25'.3	45'.5	84° 19'.8	02'.7	Alnilam	275° 44'.0	1° 11'.8 S	315° 37.9	15.5	287° 54'.1	4.9	16° 06'.6 N	6'.8	52°	03:06	03:56	04:34	06:18	07:04	07:58	
6° 34'.0	7° 18'.6	33'.9	303° 49'.6	43'.2	171° 28'.1	45'.4	99° 22'.4	02'.7	Alphard	217° 53'.5	8° 44'.2 S	330° 38.0	16.3	302° 18'.0	5.0	13.4	6'.7	60'.9	50°	03:18	04:04	04:40	06:25	07:11	08:06		
21° 36'.5	22° 19'.9	33'.9	318° 50'.3	43'.6	186° 30'.8	45'.3	114° 24'.9	02'.7				345° 38.1	17.1	316° 42'.0	4.9	20.1	6.6	45°	03:40	04:20	04:52	06:38	07:27	08:23			
36° 38'.9	37° 21'.1	1° 34'.0 N	333° 50'.9	21° 43'.9 N	201° 33'.5	4° 45'.2 S	129° 27'.5	22° 02'.7 S	Alphecca	126° 08'.5	26° 39'.5 N	0° 38'.2	14° 17'.9 N	331° 05'.9	4.8	16° 28'.7 N	6'.5	60'.9	N 40°	03:58	04:33	05:03	06:49	07:40	08:37		
51° 41'.4	52° 22.4	34'.0	348° 51'.6	44'.2	216° 36'.2	45'.1	144° 30'.0	02'.7	Alpheratz	357° 41'.1	29																

2017 May 1, 2, 3 (Mon, Tue, Wed)

	GMT	ARIES	VENUS	-4.5		MARS	+1.6		JUPITER	-2.4		SATURN	+0.3		STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise			
		GHA	GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec		Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		1	2	3	
Monday	00	219° 06.8	218° 33.5	1° 37.8 N		154° 29.7	22° 03.2 N		24° 16.5	4° 39.3 S		312° 01.3	22° 02.5 S		Acamar	315° 16.8	40° 14.4 S	180° 43.1	15° 04.0 N	114° 55.1	5.6	19° 04.0 N	1.4	59.6	N 70°	-	-	01:42	-	06:37	08:54	
	01	234° 09.3	233° 34.6	37.9		169° 30.3	03.5		39° 19.2	39.2		327° 03.9	02.5		Achernar	335° 25.5	57° 09.0 S	195° 43.2	04.8	129° 19.7	5.7	02.6	1.6	68°	-	-	00:53	02:24	05:59	07:40	09:27	
	02	249° 11.7	248° 35.7	38.0		184° 31.0	03.9		54° 22.0	39.2		342° 06.4	02.5		Acruz	173° 05.7	63° 11.8 S	210° 43.3	05.6	143° 44.4	5.7	01.0	1.6	66°	-	-	01:48	03:13	07:20	08:40	10:09	
	03	264° 14.2	263° 36.9	38.1		199° 31.6	04.2		69° 24.7	39.1		357° 09.0	02.5		Adhara	255° 10.7	29° 00.1 S	225° 43.3	06.3	158° 09.1	5.7	18° 59.4 N	1.8	59.5	64°	-	-	02:20	03:30	07:43	09:00	10:23
	04	279° 16.6	278° 38.0	38.3		214° 32.3	04.5		84° 27.4	39.0		12° 11.6	02.5		Aldebaran	290° 46.7	16° 32.4 N	240° 43.4	07.1	172° 33.8	5.8	57.6	2.0	62°	00:47	02:43	03:43	08:02	09:16	10:36		
	05	294° 19.1	293° 39.1	38.4		229° 32.9	04.8		99° 30.1	38.9		27° 14.1	02.5					255° 43.5	07.8	186° 58.6	5.9	55.6	2.0	60°	01:36	03:01	03:55	08:17	09:29	10:46		
	06	309° 21.6	308° 40.3	38.5		244° 33.6	05.1		114° 32.8	38.8		42° 16.7	02.5		Alioth	166° 18.0	55° 52.1 N	270° 43.6	08.6	201° 23.5	5.9	53.6	2.2	59.4	N 58°	02:05	03:16	04:05	08:30	09:40	10:55	
	07	324° 24.0	323° 41.4	38.6		259° 34.2	05.4		129° 35.5	38.7		57° 19.3	02.5		Alkaid	152° 56.4	49° 13.8 N	285° 43.6	09.3	215° 48.4	6.0	51.4	2.3	56°	02:27	03:29	04:14	08:41	09:50	11:03		
	08	339° 26.5	338° 42.5	38.7		274° 34.9	05.7		144° 38.2	38																						

2017 May 4, 5, 6 (Thur, Fri, Sat)

GMT	ARIES	VENUS		MARS	JUPITER		SATURN		STARS			SUN		MOON				Lat	Twilight		Sunrise	Moonrise						
		GHA	Dec		GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v		Dec	d		HP	Nautical	Civil	4	5	6	
Thursday	00	222° 04'.2	219° 50'.1	1° 49'.3 N	155° 16'.0	22° 24'.8 N	27° 31'.3	4° 32'.7 S	315° 06'.6	22° 02'.3 S	Acamar	315° 16'.8	40° 14'.4 S	180° 47'.9	15° 57'.4 N	75° 17'.7	10° 7'	12° 48'.8 N	8'.3	57'.3	N 72°	-	-	01:12	10:51	12:40	14:22	
	01	237° 06'.7	234° 51'.1	49'.3	170° 16'.6	25° 24'.1	42° 34'.0	32'.6	330° 09'.2	02'.3	Achernar	335° 25'.5	57° 09'.0 S	195° 48'.0	58'.1	89° 47'.4	10° 7'	40'.5	8'.3		N 70°	-	-	02:06	11:11	12:51	14:27	
	02	252° 09'.1	249° 52'.1	49'.5	185° 17'.3	25'.4	57° 36'.7	32'.5	345° 11'.8	02'.3	Acruz	173° 05'.7	63° 11'.9 S	210° 48'.1	58'.8	104° 17'.1	10° 8'	32'.2	8'.4		68°	-	-	02:38	11:26	12:59	14:30	
	03	267° 11'.6	264° 53'.1	49'.7	200° 17'.9	25'.4	72° 39'.4	32'.4	0° 14'.3	02'.3	Adhara	255° 10'.7	29° 00'.1 S	225° 48'.1	59'.5	118° 46'.9	10° 8'	23'.8	8'.4	57'.2	66°	-	01:27	03:01	11:38	13:07	14:33	
	04	282° 14'.1	279° 54'.1	49'.9	215° 18'.5	25'.9	87° 42'.1	32'.3	15° 16'.9	02'.3	Aldebaran	290° 46'.7	16° 32'.4 N	240° 48'.2	16° 00'.3 N	133° 16'.7	10° 9'	15'.4	8'.5		64°	-	02:05	03:19	11:49	13:13	14:35	
	05	297° 16'.5	294° 55'.0	50'.2	230° 19'.2	26'.2	102° 44'.8	32'.2	30° 19'.5	02'.3					255° 48'.2	01'.0	147° 46'.6	11'.0	06'.9	8'.5		62°	-	02:31	03:34	11:57	13:18	14:37
	06	312° 19'.0	309° 56'.0	50'.4	245° 19'.8	26'.5	117° 47'.5	32'.1	45° 22'.1	02'.3					270° 48'.3	01'.7	162° 16'.6	11'.1	11° 58'.4 N	8'.6	57'.1	60°	01:18	02:51	03:47	12:05	13:22	14:39
	07	327° 21'.5	324° 57'.0	50'.6	260° 20'.5	26'.8	132° 50'.2	32'.0	60° 24'.7	02'.2	Alioth	166° 18'.0	55° 52'.1 N	270° 48'.3	01'.7	162° 16'.6	11'.1	11° 58'.4 N	8'.6		N 58°	01:52	03:08	03:58	12:11	13:26	14:40	
	08	342° 23'.9	339° 58'.0	50'.8	275° 21'.1	27'.1	147° 52'.9	31'.9	75° 27'.2	02'.2	Alkaid	152° 56'.4	49° 13'.8 N	285														

2017 May 7, 8, 9 (Sun, Mon, Tue)

	GMT	ARIES	VENUS		-4.5	MARS		+1.6	JUPITER		-2.4	SATURN		+0.2	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
			GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec		Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP		Nautical	Civil		7	8	9
Sunday	00		GHA			GHA			GHA			GHA						GHA		GHA					N 72°	-	-	00:19	16:02	17:41	19:21
	01	225° 01'6	220° 56'9	2° 07'1 N		156° 02'0	22° 44'5 N		30° 45'1	4° 26'4 S		318° 12'7	22° 02'0 S		Acamar	315° 16'8	40° 14'3 S	180° 51'6	16° 48'3 N	41° 15'3	14'1	1° 19'2 N	10'2	55'4	N 70°	-	-	01:45	16:00	17:32	19:05
	02	240° 04'1	235° 57'7	07'4		171° 02'6	44'8		45° 47'7	26'3		333° 15'3	02'0		Achernar	335° 25'5	57° 09'0 S	195° 51'6	49'0	55° 48'4	14'1	09'0	10'2	68°	-	-	02:23	15:58	17:26	18:52	
	03	255° 06'5	250° 58'6	07'7		186° 03'3	45'1		60° 50'4	26'3		348° 17'9	02'0		Acruz	173° 05'7	63° 11'9 S	210° 51'7	49'7	70° 21'5	14'1	0° 58'8 N	10'2	66°	-	01:02	02:49	15:57	17:20	18:42	
	04	270° 09'0	265° 59'5	08'0		201° 03'9	45'3		75° 53'1	26'2		3° 20'5	02'0		Adhara	255° 10'7	29° 00'1 S	225° 51'7	50'4	84° 54'6	14'2	48'6	10'2	64°	-	01:50	03:09	15:56	17:15	18:34	
	05	285° 11'5	281° 00'3	08'3		216° 04'5	45'6		90° 55'8	26'1		18° 23'1	02'0		Aldebaran	290° 46'7	16° 32'4 N	240° 51'7	51'1	99° 27'8	14'2	38'4	10'2	62°	-	02:19	03:26	15:55	17:11	18:26	
	06	300° 13'9	296° 01'2	08'6		231° 05'2	45'9		105° 58'5	26'0		33° 25'6	02'0					255° 51'8	51'8	114° 01'0	14'2	28'2	10'2	55'3	60°	00:55	02:41	03:39	15:54	17:07	18:20
	07																														
	08	315° 16'4	311° 02'0	08'9		246° 05'8	46'1		121° 01'1	25'9		48° 28'2	02'0		Alioth	166° 18'0	55° 52'2 N	270° 51'8	52'4	128° 34'2	14'2	18'0	10'2		N 58°	01:38	02:59	03:51	15:53	17:04	18:15
	09	330° 18'9	326° 02'9	09'2		261° 06'5	46'4		136° 03'8	25'8		63° 30'8	02'0		Alkaid	152° 56'5	49° 13'8 N	285° 51'9	53'1	143° 07'4	14'3	07'8	10'1		56°	02:06	03:14	04:01	15:52	17:01	18:10
	10	345° 21'3	341° 03'7	09'5		276° 07'1	46'6		151° 06'5	25'8		78° 33'4	02'0		Alnair	27° 40'6	46° 52'4 S	300° 51'9	53'8	157° 40'7	14'2	0° 02'3 S	10'2		54°	02:26	03:26	04:10	15:52	16:59	18:05
	11	0° 23'8	356° 04'6	09'8		291° 07'7	46'9		166° 09'2	25'7		93° 36'0	02'0		Alnilam	275° 44'0	1° 11'8 S	315° 51'9	54'5	172° 13'9	14'3	12'5	10'2		52°	02:43	03:37	04:17	15:51	16:57	18:01
	12	15° 26'3	11° 05'4	10'1		306° 08'4	47'1		181° 11'9	25'6		108° 38'6	02'0		Alphard	217° 53'5	8° 44'2 S	330° 52'0	55'2	186° 47'2	14'3	22'7	10'2		50°	02:57	03:46	04:24	15:50	16:55	17:58
13	30° 28'7	26° 06'3	10'4		321° 09'0	47'4		196° 14'6	25'5		123° 41'2	02'0					345° 52'0	55'9	201° 20'5	14'3	32'9	10'1	55'2	45°	03:25	04:06	04:39	15:49	16:50	17:50	
14																															
15	45° 31'2	41° 07'1																													

GMT		ARIES		VENUS		-4.5		MARS		+1.6		JUPITER		-2.4		SATURN		+0.2		STARS			SUN		MOON					Lat	Twilight		Sunrise		Moonrise																					
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name			SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil		Sunrise		10		Moonrise		11		12	
Wednesday	00	227° 59'0		221° 54'9		2° 31'2 N		156° 47'8		23° 02'5 N		33° 57'7		4° 20'7 S		321° 19'5		22° 01'8 S		Acamar			315° 16'8		40° 14'3 S		180° 53'9		17° 36'7 N		9° 19'2		14'2		10° 13'1 S		8'4		54'3		N 70°		-		-		01:22		20:38		22:12		23:45			
	01	243° 01'5		236° 55'7		31'6		171° 48'4		02'7		49° 00'4		20'6		336° 22'1		01'8		Achernar			335° 25'5		57° 09'0 S		195° 54'0		37'4		23° 52'4		14'2		21'5		8'4		68°		-		-		02:08		20:19		21:44		23:05					
	02	258° 04'0		251° 56'4		32'0		186° 49'1		02'9		64° 03'0		20'5		351° 24'7		01'8		Acruz			173° 05'8		63° 11'9 S		210° 54'0		38'0		38° 25'6		14'2		29'9		8'4		66°		-		00:21		02:37		20:04		21:23		22:38					
	03	273° 06'4		266° 57'2		32'4		201° 49'1		03'2		79° 05'7		20'5		6° 27'3		01'7		Adhara			255° 10'7		29° 00'1 S		225° 54'0		38'7		52° 58'8		14'1		38'3		8'3		64°		-		01:33		03:00		19:51		21:06		22:17					
	04	288° 08'9		281° 57'9		32'7		216° 50'3		03'4		94° 08'4		20'4		21° 29'9		01'7		Aldebaran			290° 46'7		16° 32'4 N		240° 54'0		39'3		67° 31'9		14'2		46'6		8'3		62°		-		02:07		03:17		19:40		20:52		22:00					
	05	303° 11'4		296° 58'6		33'1		231° 51'0		03'6		109° 11'0		20'3		36° 32'5		01'7					255° 54'1		40'0		82° 05'1		14'1		54'9		8'2		60°		00:18		02:32		03:32		19:31		20:41		21:46									
	06	318° 13'8		311° 59'4		33'5		246° 51'6		03'9		124° 13'7		20'2		51° 35'1		01'7		Alioth			270° 54'1		40'6		96° 38'2		14'1		11° 03'1 S		8'1		N 58°		01:23		02:51		03:44		19:24		20:31		21:34									
	07	333° 16'3		327° 00'1		33'9		261° 52'2		04'1		139° 16'4		20'2		66° 37'7		01'7		Alkaid			285° 54'1		41'3		111° 11'3		14'1		11'2		8'2		56°		01:55		03:06		03:55		19:17		20:22		21:24									
	08	348° 18'7		342° 00'9		34'3		276° 52'9		04'3		154° 19'0		20'1		81° 40'3		01'7		Alnair			300° 54'1		41'9		125° 44'4		14'1		19'4		8'0		54°		02:18		03:20		04:04		19:11		20:14		21:14									
	09	3° 21'2		357° 01'6		34'7		291° 53'5		04'6		169° 21'7		20'0		96° 42'9		01'7		Alnilam			275° 44'0		1° 11'8 S		315° 54'2		42'6		140° 17'5		14'0		27'4		8'0		52°		02:36		03:31		04:12		19:05		20:07		21:06					
	10	18° 23'7		12° 02'3		35'0		306° 54'1		04'8		184° 24'4		19'9		111° 45'5		01'7		Alphard			217° 53'5		8° 44'2 S		330° 54'2		43'2		154° 50'5		14'1		35'4		8'0		54'2		50°		02:51		03:41		04:20		19:00		20:01		20:59			
	11	33° 26'1		27° 03'1		35'4		321° 54'8		05'0		199° 27'0		19'9		126° 48'1		01'7					345° 54'2		43'9		169° 23'6		14'0		43'4		7'9		45°		03:20		04:02		04:36		18:49		19:47		20:43									
	12	48° 28'6		42° 03'8		2° 35'8 N		336° 55'4		23° 05'3 N		214° 29'7		4° 19'8 S		141° 50'7		22° 01'7 S		Alphecca			126° 08'5		26° 39'5 N		0° 54'2		17° 44'5 N		183° 56'6		14'0		11° 51'3 S		7'9		54'2		N 40°		03:41		04:18		04:49		18:40		19:36		20:31			
	13	63° 31'1		57° 04'5		36'2		351° 56'0		05'5		229° 32'4		19'7		156° 53'3		01'7		Alpheratz			357° 41'0		29° 10'9 N		16° 54'2		45'2		198° 29'6		14'0		59'2		7'8		35°		03:58		04:32		05:00		18:33		19:27		20:20					
	14	78° 33'5		72° 05'3		36'6		6° 56'7		05'7		244° 35'0		19'6		171° 55'9		01'7		Altair			62° 05'6		8° 54'9 N		30° 54'3		45'8		213° 02'6		13'9		12° 07'0 S		7'7		30°		04:12		04:43		05:09		18:26		19:19		20:10					
	15	93° 36'0		87° 06'0		37'0		21° 57'3		06'0		259° 37'7		19'6		186° 58'5		01'7		Antkaa			353° 13'5		42° 12'7 S		45° 54'3		46'5		227° 35'5		13'9		14'7		7'7		20°		04:34		05:02		05:26		18:15		19:04		19:54					
16	108° 38'5		102° 06'7		37'4		36° 58'0		06'2		274° 40'3		19'5		202° 01'1		01'7		Antares			112° 22'7		26° 28'0 S		60° 54'3		47'1		242° 08'4		14'0		22'4		7'0		N 10°		04:52		05:18		05:40		18:05		18:52		19:40						
17	123° 40'9		117° 07'4		37'8		51° 58'6		06'4		289° 43'0		19'4		217° 03'7		01'7					75° 54'3		47'8		256° 41'4		13'9		30'1		7'6		0°		05:06		05:31		05:53		17:55		18:40		19:27										
18	138° 43'4		132° 08'2		38'1		66° 59'2		06'7		304° 45'7		19'3		232° 06'3		01'7		Arcturus			145° 53'1		19° 05'6 N		90° 54'3		48'4		271° 14'3		13'8		37'7		7'5		S 10°		05:18		05:44		06:06		17:46		18:29		19:13						
19	153° 45'8		147° 08'9		38'5		81° 59'9		06'9		319° 48'3		19'3		247° 08'9		01'7		Atria			107° 21'6		69° 03'2 S		105° 54'4		49'1		285° 47'1		13'9		45'2		7'5		S 10°		05:30		05:57		06:20		17:36		18:17		18:59						
20	168° 48'3		162° 09'6		38'9		97° 00'5		07'1		334° 51'0		19'2		262° 11'5		01'7		Bellatrix			234° 17'1		59° 34'3 S		120° 54'4		49'7		300° 20'0		13'8		52'7		7'4		30°		05:41		06:10		06:35		17:25		18:03		18:43						
21	183° 50'8		177° 10'3		39'3		112° 01'1		07'3		349° 53'7		19'1		277° 14'1		01'7		Avior			278° 29'5		6° 21'6 N		135° 54'4		50'4		314° 52'8		13'8		13° 00'1 S		7'3		35°		05:47		06:18		06:44		17:18		17:55		18:34						
22	198° 53'2		192° 11'0		39'7		127° 01'8		07'6		4° 56'3		19'0		292° 16'7		01'7		Betelgeuse			270° 58'7		7° 24'3 N		150° 54'4		51'0		329° 25'6		13'8		07'4		7'3		40°		05:53		06:26		06:55		17:11		17:46		18:24						
23	213° 55'7		207° 11'8		40'1		142° 02'4		07'8		19° 59'0		19'0		307° 19'3		01'7					165° 54'4		51'6		343° 58'4		13'8		14'7		7'3		54'1		45°		06:00		06:35		07:07		17:03		17:35		18:11								
Thursday	00	228° 58'2		222° 12'5		2° 40'5 N		157° 03'0		23° 08'0 N		35° 01'6		4° 18'9 S		322° 22'0		22° 01'7 S		Canopus			263° 55'4		52° 42'7 S		180° 54'5		17° 52'3 N		358° 31'2		13'8		13° 22'0 S		7'2		54'1		S 50°		06:07		06:46		07:21		16:52		17:22		17:56			
	01	244° 00'6		237° 13'2		40'9		172° 03'7		08'3		50° 04'3		18'8		337° 24'6		01'7		Capella			280° 31'0		46° 00'7 N		195° 54'5		52'9		13° 04'0		13'7		29'2		7'1		52°		06:10		06:51		07:28		16:48		17:16		17:49					
	02	259° 03'1		252° 13'9		41'3		187° 04'3		08'5		65° 07'0		18'7		45° 20'4 N		01'7		Deneb			49° 25'6		45° 20'4 N		210° 54'2		53'6		27° 36'7		13'7		36'3		7'1		54°		06:13		06:56		07:36		16:43		17:10		17:41					
	03	274° 05'6		267																																																				

	GMT	ARIES	VENUS	-4.5	MARS	+1.6	JUPITER	-2.4	SATURN	+0.2	STARS			SUN		MOON				Lat	Twilight		Sunrise	Moonrise			
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		13	14	15
Saturday	13 00	230° 56'.4	222° 45'.2	3° 00'.8 N	157° 33'.4	23° 18'.5 N	37° 09'.2	4° 15'.5 S	324° 27'.0	22° 01'.5 S	Acamar	315° 16'.8	40° 14'.3 S	180° 55'.0	18° 22'.5 N	336° 17'.1	12.7	17° 51'.2 S	3.7	54'.0	N 70°	-	-	-	-	01:12	02:11
	01	245° 58'.9	237° 45'.8	01'.3	172° 34'.1	18'.7	52° 11'.8	15'.4	339° 29'.7	01'.5	Achernar	335° 25'.4	57° 09'.0 S	195° 55'.0	23'.1	350° 48'.8	12.6	54'.9	3.8	68°	-	-	00:52	-	01:12	01:11	
	02	261° 01'.4	252° 46'.4	01'.7	187° 34'.7	19'.0	67° 14'.5	15'.3	354° 32'.3	01'.5	Acruz	173° 05'.8	63° 11'.9 S	210° 55'.1	23'.7	5° 20'.4	12.6	58'.7	3.6	66°	-	-	02:26	23:44	-	00:37	
	03	276° 03'.8	267° 47'.1	02'.2	202° 35'.3	19'.2	82° 17'.1	15'.3	9° 34'.9	01'.5	Adhara	255° 10'.7	29° 00'.1 S	225° 55'.1	24'.3	19° 52'.0	12.6	18° 02'.3 S	3.5	64°	-	01:14	02:50	23:20	-	00:12	
	04	291° 06'.3	282° 47'.7	02'.6	217° 36'.0	19'.4	97° 19'.8	15'.2	24° 37'.5	01'.5	Aldebaran	290° 46'.7	16° 32'.4 N	240° 55'.1	24'.9	34° 23'.6	12.6	05'.8	3.5	62°	-	01:55	03:09	23:01	23:52	24:34	
	05	306° 08'.8	297° 48'.4	03'.1	232° 36'.6	19'.6	112° 22'.4	15'.1	39° 40'.1	01'.5		255° 55'.1	25'.6	48° 55'.2	12'.5	09'.3	3.4			60°	-	02:22	03:24	22:45	23:36	24:19	
	06	321° 11'.2	312° 49'.0	03'.5	247° 37'.2	19'.8	127° 25'.1	15'.1	54° 42'.7	01'.5	Alioth	166° 18'.1	55° 52'.2 N	270° 55'.1	26'.2	63° 26'.7	12.6	12'.7	3.3	N 58°	01:06	02:43	03:38	22:32	23:23	24:06	
	07	336° 13'.7	327° 49'.7	04'.0	262° 37'.9	20'.0	142° 27'.7	15'.0	69° 45'.3	01'.5	Alkaid	152° 56'.5	49° 13'.8 N	285° 55'.1	26'.8	77° 58'.3	12.5	16'.0	3.2	56°	01:44	02:59	03:49	22:20	23:11	23:55	
	08	351° 16'.2	342° 50'.3	04'.4	277° 38'.5	20'.2	157° 30'.4	14'.9	84° 47'.9	01'.5	Alnair	27° 40'.6	46° 52'.4 S	300° 55'.1	27'.4	92° 29'.8	12.5	19'.2	3.2								

	GMT	ARIES			VENUS			-4.4			MARS			+1.6			JUPITER			-2.3			SATURN			+0.2			STARS			SUN			MOON			Lat	Twilight		Sunrise	16			Moonrise		17	18
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	Mer. Pass.	Upper	Lower	Age		Vis									
Tuesday	00	233° 53'.9	223° 28'.5	3° 35'.3 N	158° 18'.9	23° 32'.7 N	40° 19'.4	4° 10'.8 S	327° 35'.2	22° 01'.2 S	342° 37'.8	01°.2	342° 37'.8	01°.2	Acamar	315° 16'.8	40° 14'.3 S	180° 54'.8	19° 05'.4 N	301° 38'.8	11'.8	18° 44'.4 S	2'.5	54'.6	N 70°	-	-	-	-	02:33	02:39	02:40																
	01	248° 56'.3	238° 29'.0	35'.9	173° 19'.6	32'.9	55° 22'.0	10°.8	342° 37'.8	01°.2	342° 37'.8	01°.2	Achernar	335° 25'.4	57° 08'.9 S	195° 54'.8	06°.0	316° 09'.6	11'.9	41'.9	2'.6		N 68°	-	-	-	01:35	01:46	02:05	02:17																		
	02	263° 58'.8	253° 29'.6	36'.4	188° 20'.2	33'.1	70° 24'.6	10°.7	357° 40'.5	01°.2	357° 40'.5	01°.2	Acruz	173° 05'.8	63° 11'.9 S	210° 54'.8	06'.6	330° 40'.5	11'.9	39'.3	2'.7		N 66°	-	-	-	02:14	01:15	01:41	01:58																		
	03	279° 01'.3	268° 30'.1	36'.9	203° 20'.8	33'.3	85° 27'.3	10°.6	12° 43'.1	01°.2	28° 43'.1	01°.2	Adhara	255° 10'.7	29° 00'.1 S	225° 54'.8	07'.2	345° 11'.4	11'.8	36'.6	2'.8		N 64°	-	00:51	02:40	00:52	01:22	01:43																			
	04	294° 03'.7	283° 30'.7	37'.4	218° 21'.5	33'.5	100° 29'.9	10°.6	27° 45'.7	01°.2	42° 45'.7	01°.2	Aldebaran	290° 46'.7	16° 32'.4 N	240° 54'.8	07'.8	359° 42'.2	11'.9	33'.8	2'.8		N 62°	-	01:42	03:01	00:34	01:06	01:31																			
	05	309° 06'.2	298° 31'.2	37'.9	233° 22'.1	33'.7	115° 32'.5	10°.5	42° 48'.3	01°.2	14° 31'.3	01°.2		255° 54'.8	08'.3	14° 13'.1	11'.9	31'.0	3'.0		N 60°	-	02:12	03:17	00:19	00:53	01:20																					
	06	324° 08'.7	313° 31'.8	38'.4	248° 22'.7	33'.8	130° 35'.2	10°.5	57° 50'.9	01°.2	270° 54'.8	08'.9	28° 44'.0	11'.8	28'.0	3'.0	54'.7	N 58°	00:46	02:35	03:31	00:06	00:42	01:11																								
	07	339° 11'.1	328° 32'.3	38'.9	263° 23'.3	34'.0	145° 37'.8	10°.4	72° 53'.6	01°.2	43° 14'.8	11																																				

2017 May 19, 20, 21 (Fri, Sat, Sun)

		ARIES		VENUS		-4.4		MARS		+1.6		JUPITER		-2.3		SATURN		+0.1		STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise											
GMT		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°	Nautical	Civil	19	20	21
19	00	236° 51'.3	224° 05'.6	4° 14'.2 N	159° 04'.3	23° 45'.1 N	43° 28'.3	4° 06'.7 S	330° 44'.0	22° 00'.9 S	335° 25'.4	57° 08'.9 S	180° 53'.3	19° 45'.5 N	266° 45'.4	12'.0	12° 07'.1 S	8'.3	56'.3	Acamar	315° 16'.8	40° 14'.3 S	195° 53'.3	46'.0	281° 16'.4	11'.9	11° 58'.8 S	8'.5	56'.4	68°	-	-	-	02:59	02:50	02:41									
	01	251° 53'.7	239° 06'.1	14'.7	174° 05'.0	45'.2	58° 30'.9	06'.7	345° 46'.6	00'.9	335° 25'.4	57° 08'.9 S	195° 53'.3	46'.0	281° 16'.4	11'.9	11° 58'.8 S	8'.5	56'.4	Acnarnar	335° 25'.4	57° 08'.9 S	195° 53'.3	46'.0	281° 16'.4	11'.9	11° 58'.8 S	8'.5	56'.4	68°	-	-	01:15	02:23	02:28	02:36									
	02	266° 56'.2	254° 06'.5	15'.3	189° 05'.6	45'.4	73° 33'.5	06'.6	0° 49'.3	00'.9	173° 05'.8	63° 11'.9 S	210° 53'.3	46'.6	295° 47'.3	12'.0	50'.3	8'.5	66°	Acruz	173° 05'.8	63° 11'.9 S	210° 53'.3	46'.6	295° 47'.3	12'.0	50'.3	8'.5	66°	-	-	02:01	02:11	02:20	02:28										
	03	281° 58'.7	269° 07'.0	15'.9	204° 06'.2	45'.6	88° 36'.1	06'.6	15° 51'.9	00'.9	Adhara	255° 10'.7	29° 00'.1 S	225° 53'.2	47'.1	310° 18'.3	11'.9	41'.8	8'.5	64°	Adhara	255° 10'.7	29° 00'.1 S	225° 53'.2	47'.1	310° 18'.3	11'.9	41'.8	8'.5	64°	-	00:08	02:31	02:00	02:13	02:25									
	04	297° 01'.1	284° 07'.5	16'.4	219° 06'.9	45'.7	103° 38'.8	06'.5	30° 54'.5	00'.9	Aldebaran	290° 46'.7	16° 32'.4 N	240° 53'.2	47'.7	324° 49'.2	11'.9	33'.3	8'.7	56'.5	Aldebaran	290° 46'.7	16° 32'.4 N	240° 53'.2	47'.7	324° 49'.2	11'.9	33'.3	8'.7	56'.5	62°	-	01:28	02:53	01:51	02:07	02:22								
	05	312° 03'.6	299° 08'.0	17'.0	234° 07'.5	45'.9	118° 41'.4	06'.5	45° 57'.1	00'.9	Alkaid	255° 53'.2	48'.2	339° 20'.1	11'.9	24'.6	8'.7	60°	-	-	-	-	-	-	-	-	-	-	-	-	02:03	03:11	01:43	02:02	02:20										
	06	327° 06'.1	314° 08'.4	17'.6	249° 08'.1	46'.																																							

2017 May 22, 23, 24 (Mon, Tue, Wed)

GMT	ARIES			VENUS			-4.4			MARS			+1.7			JUPITER			-2.3			SATURN			+0.1			STARS			SUN			MOON						Lat	Twilight		Sunrise	Moonrise		
	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	22	23	24																	
Monday	00	239° 48'2	224° 37'2	4° 56'8 N	159° 49'7	23° 55'6 N	46° 35'9	44° 03'2 S	333° 53'4	22° 00'7 S	338° 56'0	00'7	Acamar	315° 16'8	40° 14'3 S	180° 50'6	20° 22'6 N	231° 11'1	10'2	0° 14'8 N	11'7	59'1	N 70°	-	-	-	02:33	02:25	02:16																	
	01	254° 51'7	223° 37'6	5° 57'4	174° 50'3	55'7	171° 38'5	03'2	345° 58'0	00'7	Acchernar	335° 25'4	57° 08'9 S	195° 50'6	23'1	245° 40'3	10'2	26'5	11'6	68°	-	-	-	00:52	02:35	02:38	02:43																			
	02	269° 53'6	254° 38'0	58'0	189° 51'0	55'8	76° 41'1	03'2	3° 58'6	00'7	Acruz	173° 05'8	63° 11'9 S	210° 50'5	23'5	260° 09'5	10'1	38'1	11'7	59'2	66°	-	-	01:49	02:35	02:43	02:53																			
	03	284° 56'1	289° 38'4	58'6	204° 51'6	56'0	91° 43'6	03'1	19° 01'3	00'6	Adhara	255° 10'7	29° 00'1 S	225° 50'4	20'4	274° 38'6	10'1	49'8	11'7	64°	-	-	02:22	02:36	02:48	03:02																				
	04	299° 58'6	284° 38'8	59'2	219° 52'2	56'1	106° 46'2	03'1	34° 03'9	00'6	Aldebaran	290° 46'7	16° 32'4 N	240° 50'4	24'5	289° 07'7	10'0	1° 01'5 N	11'7	62°	-	-	01:14	02:46	02:36	02:51	03:09																			
	05	315° 01'0	299° 39'2	59'8	234° 52'9	56'2	121° 48'8	03'0	49° 06'5	00'6				255° 50'3	25'0	303° 36'7	10'0	13'2	11'7	59'3	60°	-	-	01:53	03:05	02:37	02:55	03:15																		
	06	330° 03'5	314° 39'6	5° 00'5 N	249° 53'5	56'3	136° 51'4	03'0	64° 09'2	00'6	Alioth	166° 18'1	55° 52'2 N	270° 50'3	25'5	318° 05'7	9'9	24'9	11'7	58°	-	-	02:20	03:20	02:37	02:58	03:21																			
	07	345° 05'9	329° 40'0	01'1	264° 54'1	56'5	151° 54'0	02'9	79° 11'8	00'6	Alkaid	152° 56'5	49° 13'8 N	285° 50'2	26'0	332° 34'6	9'9	36'6	11'7	56°	01:07	02:40	03:34	02:37	03:00	03:26																				
	08	0° 08'4	344° 40'3	01'7	279° 54'7	56'6	166° 56'6	02'9	94° 14'4	00'6	Alnair	27° 40'5																																		

2017 May 25, 26, 27 (Thur, Fri, Sat)

GMT	ARIES	VENUS		-4.4	MARS		+1.7	JUPITER		-2.3	SATURN		+0.1	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		Nautical	Civil		25	26		27																						
		GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	-	-	-	02:05	01:46	-				
Thurs day	00	242° 46.1'	225° 03.7'	5° 42.6' N	160° 35.1'	24° 04.1' N	49° 42.0'	4° 00.4' S	337° 03.2'	22° 00.4' S	Acamar	315° 16.8'	40° 14.2' S	180° 46.6'	20° 56.5' N	191° 39.8'	5.6	13° 29.9' N	9.1	61.2°	N 70°	-	-	-	02:31	02:34	02:45			
	01	257° 48.6'	240° 04.1'	43.2	175° 35.7'	04.3	64° 44.6'	00.3	352° 05.9'	00.4	Achernar	335° 25.4'	57° 08.9' S	195° 46.5'	56.9	206° 04.4'	5.5	39.0	9.0	68°	-	-	00:13	02:51	03:05	03:32				
	02	272° 51.0'	255° 04.4'	43.9	190° 36.3'	04.4	79° 47.2'	00.3	7° 08.5'	00.4	Acruz	173° 05.8'	63° 11.9' S	210° 46.5'	57.4	220° 28.9'	5.4	48.0	9.0	66°	-	-	01:37	03:07	03:28	04:02				
	03	287° 53.5'	270° 04.7'	44.6	205° 37.0'	04.5	94° 49.7'	00.3	22° 11.2'	00.4	Adhara	255° 10.7'	29° 00.1' S	225° 46.4'	57.8	234° 53.3'	5.4	57.0	8.8	64°	-	-	02:13	03:20	03:46	04:25				
	04	302° 56.0'	285° 05.1'	45.2	220° 37.6'	04.6	109° 52.3'	00.2	37° 13.8'	00.3	Aldebaran	290° 46.7'	16° 32.4' N	240° 46.3'	58.3	249° 17.7'	5.3	14° 05.8' N	8.8	61.3°	62°	-	00:58	02:39	03:31	04:02	04:44			
	05	317° 58.4'	300° 05.4'	45.9	235° 38.2'	04.7	124° 54.9'	00.2	52° 16.4'	00.3				255° 46.3'	58.7	263° 42.0'	5.3	14.6	8.6	60°	-	01:44	02:59	03:41	04:14	04:59				
	06	333° 00.9'	315° 05.7'	46.5	250° 38.8'	04.8	139° 57.5'	00.2	67° 19.1'	00.3	Alioth	166° 18.1'	55° 52.2' N	270° 46.2'	59.2	278° 06.3'	5.2	23.2	8.6	N 58°	-	02:13	03:15	03:49	04:25	05:12				
	07	348° 03.4'	330° 06.0'	47.2	265° 39.5'	04.9	155° 00.0'	00.1	82° 21.7'	00.3	Alkaid	152° 56.5'	49° 13.9' N	285° 46.1'	59.6	292° 30.5'	5.1	31.8	8.5	56°	00:52	02:34	03:29	03:57	04:35	05:23				
	08	3° 05.8'	345° 06.4'	47.8	280° 40.1'	05.0	170° 02.6'	00.1	97° 24.4'	00.3	Alnair	27° 40.5'	46° 52.4' S	300° 46.1'	21° 00.0' N	306° 54.6'	5.0	40.3	8.3	54°	01:34	02:52	03:4							

2017 May 28, 29, 30 (Sun, Mon, Tue)

	GMT	ARIES	VENUS	-4.3	MARS	+1.7	JUPITER	-2.3	SATURN	+0.1	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		28	29	30
Sunday	28 00	245° 43.5	225° 25.7	6° 31.1' N	161° 20.5	24° 10.9' N	52° 46.7	3° 58.1' S	340° 13.5	22° 00.1' S	Acamar	315° 16.8	40° 14.2' S	180° 41.5	21° 27.1' N	147° 22.6	3.9	19° 21.8' N	0.2	60.8	N 70°	-	-	-	-	-	06:11
	01	260° 46.0	240° 26.0	31.8	176° 21.1	10.9	67° 49.3	58.1	355° 16.2	00.1	Achernar	335° 25.3	57° 08.9' S	195° 41.4	27.5	161° 45.5	3.9	21.6	0.2	68°	-	-	-	-	03:28	05:02	06:54
	02	275° 48.5	255° 26.3	32.5	191° 21.8	11.0	82° 51.9	58.1	10° 18.8	00.1	Acruz	173° 05.9	63° 11.9' S	210° 41.3	27.9	176° 08.4	4.0	21.4	0.4	60.7	66°	-	-	01:24	04:58	06:14	07:44
	03	290° 50.9	270° 26.6	33.2	206° 22.4	11.1	97° 54.4	58.0	25° 21.5	00.0	Adhara	255° 10.8	29° 00.1' S	225° 41.2	28.3	190° 31.4	4.0	21.0	0.6	61°	-	-	-	02:05	05:22	06:36	08:01
	04	305° 53.4	285° 26.8	33.9	221° 23.0	11.2	112° 57.0	58.0	40° 24.1	00.0	Aldebaran	290° 46.7	16° 32.4' N	240° 41.2	28.7	204° 54.4	4.0	20.4	0.7	62°	-	00:38	02:33	05:42	06:54	08:15	
	05	320° 55.9	300° 27.1	34.6	236° 23.7	11.3	127° 59.5	58.0	55° 26.8	00.0				255° 41.1	29.1	219° 17.4	4.1	19.7	0.8	60°	-	01:35	02:54	05:57	07:08	08:27	
	06	335° 58.3	315° 27.4	35.3	251° 24.3	11.3	143° 02.1	57.9	70° 29.4	00.0	Alioth	166° 18.1	55° 52.2' N	270° 41.0	29.5	233° 40.5	4.1	18.9	1.0	60.6	N 58°	-	02:06	03:11	06:11	07:21	08:37
	07	351° 00.8	330° 27.6	36.0	266° 24.9	11.4	158° 04.6	57.9	85° 32.1	00.0	Alkaid	152° 56.5	49° 13.9' N	285° 40.9	29.9	248° 03.6	4.2	17.9	1.1		56°	00:34	02:29	03:25	06:23	07:31	08:46
	08	6° 03.2	345° 27.9	36.6	281° 25.6	11.5	173° 07.2	57.9	100° 34.7	00.0	Alnair	27° 40.4	46° 52.3' S	300° 40.8	30.3	262° 26.8	4.2	16.8	1.2		54°	01:26	02:47	03:38	06:33	07:41	08:54
	09	21° 05.7	0° 28.2																								

2017 May 31, Jun. 1, 2 (Wed, Thur, Fri)

	GMT	ARIES	VENUS	-4.3	MARS	+1.7	JUPITER	-2.2	SATURN	+0.1	STARS			SUN		MOON				Lat	Twilight		Sunrise	Moonrise				
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	31	Moonside 1	2		
Wednesday day	31 00	248° 41' 0	225° 43' 6	7° 21' 9 N	162° 06' 1	24° 15' 7 N	55° 50' 0	3° 56' 5 S	343° 24' 3	21° 59' 8 S	Acamar	315° 16' 8	40° 14' 2 S	180° 35' 4	21° 54' 5 N	105° 37' 5	9' 3	13° 58' 6 N	8' 0	58' 3	N 70°	-	-	-	08:20	10:14	12:00	
	01	263° 43' 4	240° 43' 8	22' 6	177° 06' 7	15' 8	70° 52' 5	56' 5	358° 26' 9	59' 8	Achernar	335° 25' 3	57° 08' 9 S	195° 35' 3	54' 8	120° 05' 8	9' 3	50' 6	8' 1	68°	-	-	-	08:44	10:28	12:07		
	02	278° 45' 9	255° 44' 0	23' 3	192° 07' 3	15' 8	85° 55' 1	56' 4	13° 29' 6	59' 7	Acruz	173° 05' 9	63° 11' 9 S	210° 35' 2	55' 2	134° 34' 1	9' 4	42' 5	8' 2	58' 2	66°	-	-	01:12	09:17	10:48	12:17	
	03	293° 48' 3	270° 44' 2	24' 0	207° 08' 0	15' 9	100° 57' 6	56' 4	28° 32' 2	59' 7	Adhara	255° 10' 8	29° 00' 0 S	225° 35' 1	55' 5	149° 02' 5	9' 4	34' 3	8' 2	64°	-	-	01:58	09:29	10:56	12:20		
	04	308° 50' 8	285° 44' 4	24' 7	222° 08' 6	15' 9	116° 00' 1	56' 4	43° 34' 9	59' 7	Aldebaran	290° 46' 7	16° 32' 4 N	240° 35' 0	55' 9	163° 30' 9	9' 6	26' 1	8' 4	62°	-	-	02:27	09:39	11:02	12:23		
	05	323° 53' 3	300° 44' 6	25' 5	237° 09' 3	16' 0	131° 02' 7	56' 4	58° 37' 5	59' 7				255° 34' 9	56' 2	177° 59' 5	9' 6	17' 7	8' 3	58' 1	60°	-	01:26	02:49	09:48	11:08	12:26	
	06	338° 55' 7	315° 44' 9	26' 2	252° 09' 9	16' 0	146° 05' 2	56' 4	73° 40' 2	59' 7	Alioth	166° 18' 2	55° 52' 2 N	192° 34' 8	56' 6	192° 28' 1	9' 8	09' 4	8' 4	58' 0	N 58°	-	02:00	03:07	09:56	11:13	12:29	
	07	353° 58' 2	330° 45' 1	26' 9	267° 10' 5	16' 1	161° 07' 7	56' 4	88° 42' 8	59' 7	Alkaid	152° 56' 5	49° 13' 9 N	285° 34' 7	56' 9	206° 56' 9	9' 8	01' 0	8' 5	58' 0	56°	-	02:24					

2017 June 3, 4, 5 (Sat, Sun, Mon)

GMT	ARIES	VENUS	-4.3	MARS	+1.7	JUPITER	-2.2	SATURN	+0.1	STARS	SUN	MOON	Lat	Twilight	Civil	Sunrise	3	Moonrise	4	5								
	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	-	-	-	13:42	15:21	17:00		
3	S a t u r d a y	00	251° 38'.4	225° 57'.4	8° 14'.4 N	162° 51'.9	24° 18'.7 N	58° 51'.7	3° 55'.5 S	346° 35'.3	21° 59'.4 S	180° 28'.4	22° 18'.4 N	70° 35'.4	13'.8	2° 29'.9 N	10'.3	55'.8	N 70°	-	-	-	13:42	15:15	16:47			
		01	266° 40'.8	240° 57'.6	15'.1	177° 52'.5	18'.7	73° 54'.3	55'.5	1° 37'.9	59'.4	195° 28'.3	18'.7	85° 08'.2	13'.9	19'.6	10'.3		N 68°	-	-	-	13:42	15:10	16:36			
		02	281° 43'.3	255° 57'.8	15'.8	192° 53'.1	18'.7	88° 56'.8	55'.5	16° 40'.6	59'.4	Acruz	173° 05'.9	63° 11'.9 S	210° 28'.2	19'.0	99° 41'.1	13'.9	09'.3	10'.3	66°	-	-	00:58	13:42	15:06	16:28	
		03	296° 45'.8	270° 57'.9	16'.6	207° 53'.8	18'.8	103° 59'.3	55'.5	31° 43'.3	59'.4	Adhara	255° 10'.8	29° 00'.0 S	225° 28'.1	19'.3	114° 14'.0	13'.9	1° 59'.0 N	10'.4	55'.7	64°	-	-	01:51	13:42	15:02	16:21
		04	311° 48'.2	285° 58'.1	17'.3	222° 54'.4	18'.8	119° 01'.8	55'.5	46° 45'.9	59'.4	Aldebaran	290° 46'.7	16° 32'.4 N	240° 28'.0	19'.6	128° 46'.9	14'.0	48'.6	10'.3		62°	-	-	02:22	13:42	14:59	16:15
		05	326° 50'.7	300° 58'.3	18'.1	237° 55'.1	18'.8	134° 04'.3	55'.5	61° 48'.6	59'.4				19'.9	143° 19'.9	14'.0	38'.3	10'.3		60°	-	01:17	02:45	13:42	14:56	16:09	
		06	341° 53'.2	315° 58'.4	18'.8	252° 55'.7	18'.8	149° 06'.8	55'.4	76° 51'.2	59'.4	Alioth	166° 18'.2	55° 52'.2 N	270° 27'.7	20'.2	157° 52'.9	14'.0	28'.0	10'.3		N 58°	-	01:55	03:04	13:42	14:54	16:04
		07	356° 55'.6	330° 58'.6	19'.5	267° 56'.3	18'.9	164° 09'.3	55'.4	91° 53'.9	59'.4	Alkaid	152° 56'.5	49° 13'.9 N	285° 27'.6	20'.5	172° 25'.9	14'.0	17'.7	10'.3	55'.6	56°	-	02:20	03:19	13:42	14:52	16:00
		08	11° 58'.1	345° 58'.7	20'.3	282° 57'.0	18'.9	179° 11'.8	55'.4	106° 56'.5	59'.4	Alnair	27° 40'.4	46° 52'.3 S	300° 27'.5	20'.8	186° 58'.9	14'.0	07'.4	10'.3		54°	01:10	02:40				

2017 June 6, 7, 8 (Tue, Wed, Thur)

GMT		ARIES			VENUS			-4.3			MARS			+1.7			JUPITER			-2.2			SATURN			+0.0			STARS			SUN			MOON						Lat		Twilight		Sunrise		6			Moonrise																						
		GHA			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			Name			SHA			Dec			GHA			Dec			GHA			v			Dec			d			HP			N 72°		Nautical		Civil									
6	T u e s d a y	00	254° 35'8	226° 07'5	9° 08'2 N	163° 37'9	24° 19'8 N	61° 52'0	3° 55'1 S	349° 46'6	21° 59'1 S	Acamar	315° 16'7	40° 14'2 S	180° 20'6	22° 38'7 N	38° 43'6	14'4	9° 16'6 S	8'8	54'4	N 70°	-	-	-	-	18:41	20:29	22:35																																											
		01	269° 38'2	241° 07'7	09'0	178° 54'5	19°8	76° 54'5	55°1	4° 49'2	59°1	Acchernar	335° 25'3	57° 08'8 S	195° 20'5	39'0	53° 17'0	14'5	25'4	8'7	68°	-	-	-	-	18:20	20:54	21:28																																												
		02	284° 40'7	256° 07'8	09'7	193° 39'2	19°8	91° 57'0	55'1	19° 51'9	59'1	Acruz	173° 05'9	63° 11'9 S	210° 20'4	39'2	67° 50'5	14'5	34'1	8'7	54'3	66°	-	-	-	00:44	17:49	19:10	20:27																																											
		03	299° 43'2	271° 07'9	10'5	208° 39'8	19°8	106° 59'5	55'1	34° 54'6	59'1	Adhara	255° 10'8	29° 00'0 S	225° 20'3	39'5	82° 24'0	14'4	42'8	8'7	64°	-	-	-	01:44	17:38	18:54	20:07																																												
		04	314° 45'6	286° 08'0	11'2	223° 40'5	19°8	122° 02'0	55'1	49° 57'2	59'1	Aldebaran	290° 46'7	16° 32'4 N	240° 20'1	39'7	96° 57'4	14'4	51'5	8'6	62°	-	-	-	02:18	17:29	18:42	19:51																																												
		05	329° 48'1	301° 08'1	12'0	238° 41'1	19°8	137° 04'5	55'1	64° 59'9	59'1					255° 20'0	40'0	111° 30'8	14'4	10° 00'1 S	8'5	60°	-	-	01:09	02:42	17:21	18:31	19:38																																											
		06	344° 50'6	316° 08'2	12'7	253° 41'8	19°8	152° 07'0	55'1	80° 02'5	59'1	Alioth	166° 18'2	55° 52'3 N	270° 19'9	40'3	126° 04'2	14'4	08'6	8'6	58°	-	-	-	01:50	03:01	17:14	18:22	19:26																																											
		07	359° 53'0	331° 08'3	13'5	268° 42'4	19°8	167° 09'4	55'1	95° 05'2	59'1	Alkaid	152° 56'5	49° 13'9 N	285° 19'8	40'5	140° 37'6	14'4	17'2	8'4	56°	-	-	-	02:17	03:17	17:08	18:13	19:17																																											
		08	14° 55'5	346° 08'4	14'2	283° 4																																																																		

2017 June 9, 10, 11 (Fri, Sat, Sun)

GMT		ARIES		VENUS		-4.3		MARS		+1.7		JUPITER		-2.2		SATURN		+0.0		STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise						
																														Nautical		Civil		9		10		11		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name			SHA		Dec		GHA		v		Dec		d	HP	N 72°	-	-	-	-	-
Friday	00	257° 33'.2	226° 14'.0	10° 02'.9 N	164° 24'.3	24° 19'.0 N	64° 50'.8	3° 55'.4 S	352° 58'.1	21° 58'.8 S	Acamar	315° 16'.7	40° 14'.2 S	180° 12'.2	22° 55'.5 N	5° 59'.4	12'.8	17° 28'.4 S	4'.4	54'.0	180° 12'.2	22° 55'.5 N	5° 59'.4	12'.8	17° 28'.4 S	4'.4	54'.0	N 70°	-	-	-	23:01	-	24:48						
	01	272° 35'.7	241° 14'.1	03'.7	179° 24'.9	19'.0	79° 53'.2	55'.4	8° 00'.7	58'.8	Achernar	335° 25'.2	57° 08'.8 S	195° 12'.0	55'.7	20° 31'.2	12'.7	32'.8	4'.3		195° 12'.0	55'.7	20° 31'.2	12'.7	32'.8	4'.3		68°	-	-	-	22:09	23:11	23:53						
	02	287° 38'.1	256° 14'.1	04'.5	194° 25'.6	19'.0	94° 55'.7	55'.5	23° 03'.4	58'.8	Acruz	173° 06'.0	63° 12'.0 S	210° 11'.9	55'.9	35° 02'.9	12'.8	37'.1	4'.2		210° 11'.9	55'.9	35° 02'.9	12'.8	37'.1	4'.2		66°	-	-	00:27	21:37	22:36	23:20						
	03	302° 40'.6	271° 14'.2	05'.2	209° 26'.2	19'.0	109° 58'.2	55'.5	28° 06'.1	58'.8	Adhara	255° 10'.8	29° 00'.0 S	225° 11'.8	56'.1	49° 34'.7	12'.7	41'.3	4'.2		225° 11'.8	56'.1	49° 34'.7	12'.7	41'.3	4'.2		64°	-	-	01:39	21:14	22:11	22:55						
	04	317° 43'.1	286° 14'.2	06'.0	224° 26'.9	18'.9	125° 00'.7	55'.5	53° 08'.7	58'.8	Aldebaran	290° 46'.6	16° 32'.4 N	240° 11'.7	56'.3	64° 06'.4	12'.7	45'.5	4'.0		240° 11'.7	56'.3	64° 06'.4	12'.7	45'.5	4'.0		62°	-	-	02:14	20:55	21:51	22:36						
	05	332° 45'.5	301° 14'.3	06'.8	239° 27'.5	18'.9	140° 03'.1	55'.5	68° 11'.4	58'.8				255° 11'.6	56'.5	78° 38'.1	12'.6	49'.5	4'.0		255° 11'.6	56'.5	78° 38'.1	12'.6	49'.5	4'.0		60°	-	01:02	02:39	20:40	21:35	22:20						
	06	347° 48'.0	316° 14'.4	07'.5	254° 28'.2	18'.9	155° 05'.6	55'.5	83° 14'.0	58'.8	Alioth	166° 18'.2	55° 52'.3 N	270° 11'.4	56'.8	93° 09'.7	12'.7	53'.5	3'.9																					

	GMT	ARIES	VENUS	-4.2	MARS	+1.7	JUPITER	-2.2	SATURN	+0.0	STARS			SUN		MOON				Lat	Twilight		Sunrise	Moonrise			
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		12	13	14
Monday	00	260° 30'6	226° 16'9	10° 58'2 N	165° 11'0	24° 16'5 N	67° 48'0	3° 56'4 S	356° 09'7	21° 58'5 S	Acamar	315° 16'7	40° 14'1 S	180° 03'2	23° 08'7 N	331° 20'8	11'8	19° 06'9 S	1'9	54'4	N 72°	-	-	-	-	02:19	01:35
	01	275° 33'1	241° 16'9	59'0	180° 11'7	16'4	82° 50'5	56'4	11° 12'4	58'5	Achernar	335° 25'2	57° 08'8 S	195° 03'1	08'8	345° 51'6	11'8	05'0	2'0	68°	N 70°	-	-	-	00:48	00:55	00:57
	02	290° 35'5	256° 16'9	59'7	195° 12'3	16'4	97° 52'9	56'4	26° 15'0	58'5	Acruz	173° 06'0	63° 12'0 S	210° 02'9	09'0	0° 22'4	11'8	03'0	2'1	66°	-	-	-	-	23:49	-	00:09
	03	305° 38'0	271° 16'9	11° 00'5 N	210° 13'0	16'3	112° 55'4	56'4	41° 17'7	58'5	Adhara	255° 10'8	29° 00'0 S	225° 02'8	09'1	14° 53'2	11'8	00'9	2'1	64°	-	-	-	01:35	23:28	23:52	24:10
	04	320° 40'5	286° 17'0	01'3	225° 13'6	16'3	127° 57'8	56'4	56° 20'4	58'5	Aldebaran	290° 46'6	16° 32'4 N	240° 02'7	09'3	29° 24'0	11'8	18° 58'8 S	2'3	62°	-	-	-	02:11	23:11	23:38	23:59
	05	335° 42'9	301° 17'0	02'0	240° 14'3	16'2	143° 00'3	56'4	71° 23'0	58'5				255° 02'5	09'5	43° 54'8	11'8	56'5	2'3	60°	-	-	00:56	02:37	22:57	23:27	23:50
	06	350° 45'4	316° 17'0	02'8	255° 14'9	16'2	158° 02'8	56'5	86° 25'7	58'5	Alioth	166° 18'2	55° 52'3 N	270° 02'4	09'6	58° 25'6	11'8	54'2	2'5	54'5	N 58°	-	01:43	02:57	22:45	23:17	23:42
	07	5° 47'9	331° 17'0	03'6	270° 15'6	16'1	173° 05'2	56'5	101° 28'3	58'5	Alkaid	152° 56'6	49° 13'9 N	285° 02'3	09'8	72° 56'4	11'8	51'7	2'5	56°	-	-	02:12	03:14	22:35	23:08	23:35
	08	20° 50'3	346° 17'0	04'3	285° 16'3	16'1	188° 07'6	56'5	116° 31'0	58'5	Alnair	27° 40'3	46° 52'3 S	300° 02'2	09'9	87° 27'2	11'8	49'2	2'6	54°	00:51	02:34	03:28	22:26	23:00	23:29	
	09	35° 52'8	1° 17'0	05'1	300° 1																						

GMT	ARIES	VENUS			-4.2			MARS			+1.7			JUPITER			-2.1			SATURN			+0.0			STARS					SUN				MOON					Lat	Twilight		Sunrise	15	Moonrise		17
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	15	16	17																			
15 T h u r s d a y	00	263° 28.0	226° 16.3	11° 53.5 N	165° 58.2	24° 12.1 N	70° 43.8	3° 57.9 S	359° 21.4	21° 58.2 S	Acamar	315° 16.7	40° 14.1 S	179° 53.8	23° 18.2 N	296° 34.9	12.3	13° 11.5 S	7.8	55.7	N 70°	-	-	-	01:20	01:09	01:00																				
	01	278° 30.5	241° 16.3	54.3	180° 58.8	12.0	85° 46.3	57.9	14° 24.1	58.2	Achernar	335° 25.2	57° 08.8 S	194° 53.7	18.3	311° 06.2	12.4	03.7	7.9	68°	-	-	-	00:56	00:54	00:52																					
	02	293° 33.0	256° 16.2	55.1	195° 59.5	11.9	100° 48.7	58.0	29° 26.7	58.2	Acru	173° 06.0	63° 12.0 S	209° 53.5	18.4	325° 37.6	12.4	12° 55.8 S	7.9	66°	-	-	-	00:22	00:32	00:40																					
	03	308° 35.4	271° 16.2	55.8	211° 00.2	11.9	115° 51.1	58.0	44° 29.4	58.2	Adhara	255° 10.8	29° 00.0 S	224° 53.4	18.5	340° 09.0	12.3	47.9	8.0	55.8	64°	-	-	01:32	00:10	00:24	00:35																				
	04	323° 37.9	286° 16.2	56.6	226° 00.8	11.8	130° 53.6	58.0	59° 32.1	58.2	Aldebaran	290° 46.6	16° 32.4 N	239° 53.3	18.6	354° 40.3	12.4	39.9	8.1	64°	-	-	02:10	-	00:16	00:31																					
	05	338° 40.4	301° 16.1	57.4	241° 01.5	11.7	145° 56.0	58.0	74° 34.7	58.1				254° 53.1	18.7	9° 11.7	12.4	31.8	8.1	62°	-	-	00:52	02:36	-	00:10	00:27																				
	06	353° 42.8	316° 16.1	58.1	256° 02.1	11.6	160° 58.4	58.1	89° 37.4	58.1	Alioth	166° 18.2	55° 52.3 N	269° 53.0	18.8	23° 43.1	12.4	23.7	8.2	N 58°	-	-	01:41	02:56	-	00:04	00:24																				
	07	8° 45.3	331° 16.1	58.9	271° 02.8	11.6	176° 00.8	58.1	104° 40.1	58.1	Alkaid	152° 56.6	49° 13.9 N	284° 52.9	18.9	38° 14.5	12.4	15.5	8.2	55.9	56°	-	02:11	03:13	23:59	-	00:21																				
	08	23° 47.8	346° 16.0	59.7	286° 03.4	11.5	191° 03.3	58.1	119° 42.7	58.1	Alnair	27° 40.2	46° 52.3 S	299° 52.7	19.0	52° 45.9	12.4	07.3	8.4	54°	00:47	02:33	03:27	23:55																							

GMT		ARIES			VENUS			-4.2			MARS			+1.7			JUPITER			-2.1			SATURN			+0.0			STARS			SUN			MOON			Lat	Twilight		Sunrise	18			Moonrise												
		GHA			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			Name			SHA			Dec			GHA			v			Dec			d	HP	N 72°	Nautical	Civil						
S u n d a y	00	266° 25.5	226° 12.3	12° 48' 6" N	166° 45' 8"	24° 05' 9" N	73° 38' 2"	4° 00' 1" S	2° 33' 2"	21° 57' 9" S	Acamar	315° 16' 7"	40° 14' 1" S	179° 44' 1"	23° 24' 0" N	262° 03' 9"	11' 6"	1° 29' 6" S	11' 2"	57' 9"	N 70°	-	-	-	00:50	00:48	00:46																														
	01	281° 27' 9"	241° 12' 2"	49.3	181° 46' 4"	05.8	88° 40' 6"	00.1	17° 35' 8"	57.8	Achernar	335° 25' 1"	57° 08' 8" S	194° 44' 0"	24.0	276° 34' 5"	11.6	18.4	11.2	68°	-	-	-	00:48	00:51	00:55																															
	02	296° 30' 4"	256° 12' 1"	50.1	196° 47' 1"	05.7	103° 43' 0"	00.1	32° 38' 5"	57.8	Acru	173° 06' 0"	63° 12' 0" S	209° 43' 8"	24.1	291° 05' 1"	11.5	07.2	11.3	58° 0	66°	-	-	-	00:47	00:54	01:02																														
	03	311° 32' 8"	271° 12' 0"	50.8	211° 47' 8"	05.6	118° 45' 4"	00.2	47° 41' 1"	57.8	Adhara	255° 10' 8"	29° 00' 0" S	224° 43' 7"	24.1	305° 35' 6"	11.5	0° 55' 9" S	11.2	64°	-	-	-	01:31	00:46	00:56	01:08																														
	04	326° 35' 3"	286° 12' 0"	51.6	226° 48' 4"	05.5	133° 47' 8"	00.2	62° 43' 8"	57.8	Aldebaran	290° 46' 6"	16° 32' 4" N	239° 43' 5"	24.2	320° 06' 1"	11.4	44.7	11.3	58° 1	62°	-	-	02:09	00:45	00:58	01:14																														
	05	341° 37' 8"	301° 11' 9"	52.4	241° 49' 1"	05.4	148° 50' 2"	00.2	77° 46' 5"	57.8				254° 43' 4"	24.2	334° 36' 5"	11.4	33.4	11.3	60°	-	-	00:49	02:36	00:44	01:00	01:19																														
	06	356° 40' 2"	316° 11' 8"	53.1	256° 49' 8"	05.3	163° 52' 6"	00.3	92° 49' 1"	57.8	Alioth	166° 18' 3"	55° 52' 3" N	269° 43' 3"	24.3	349° 06' 9"	11.4	22.1	11.3	N 58°	-	-	01:40	02:56	00:43	01:02	01:23																														
	07	11° 42' 7"	331° 11' 7"	53.9	271° 50' 4"	05.2	178° 55' 0"	00.3	107° 51' 8"	57.8	Alkaid	152° 56' 6"	49° 13' 9" N	284° 43' 1"	24.3	3° 37' 3"	11.3	10.8	11.3	58° 2	56°	-	-	02:10	03:13	00:42	01:03	01:27																													
	08																																																								

GMT		ARIES		VENUS		-4.2		MARS		+1.7		JUPITER		-2.1		SATURN		+0.0		STARS			SUN		MOON					Lat	Twilight		Sunrise		21		Moonrise		22		23														
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil											
21	W e d n e s d a y	00		269° 22.9		226° 04.9		13° 42.9 N		167° 33.9		23° 58.0 N		76° 31.0		4° 02.9 S		5° 44.8		21° 57.5 S		Acamar		315° 16.6		40° 14.1 S		179° 34.3		23° 26.1 N		224° 30.9		7.2		11° 46.4 N		9.8		60.4		N 72°		-		-		-		00:25		00:45		00:49	
		01		284° 25.3		241° 04.8		43.7		182° 34.5		57.8		91° 33.4		02.9		20° 47.5		57.5		Achernar		335° 25.1		57° 08.8 S		194° 34.1		26.1		238° 57.1		7.1		56.2		9.8		68°		-		-		-		00:45		01:00		01:27			
		02		299° 27.8		256° 04.6		44.4		197° 35.2		57.7		106° 35.8		02.9		35° 50.2		57.5		Acruz		173° 06.1		63° 12.0 S		209° 34.0		26.1		253° 23.2		7.0		12° 06.0 N		9.7		66°		-		-		-		01:00		01:29		01:54			
		03		314° 30.3		271° 04.5		45.1		212° 35.9		57.6		121° 38.2		03.0		50° 52.8		57.5		Adhara		255° 10.8		29° 00.0 S		224° 33.8		26.1		267° 49.2		7.0		15.7		9.6		60.5		64°		-		-		01:13		01:23		01:44		02:15	
		04		329° 32.7		286° 04.4		45.9		227° 36.6		57.5		136° 40.6		03.0		65° 55.5		57.5		Aldebaran		290° 46.6		16° 32.4 N		239° 33.7		26.1		282° 15.2		6.9		25.3		9.6		62°		-		-		01:31		01:23		01:44		02:15			
		05		344° 35.2		301° 04.3		46.6		242° 37.2		57.4		151° 43.0		03.1		80° 58.1		57.5								254° 33.6		26.1		296° 41.1		6.8		34.9		9.5		60°		-		00:50		02:36		01:40		02:08		02:46			
		06		359° 37.7		316° 04.1		47.4		257° 37.9		57.2		166° 45.3		03.1		96° 00.8		57.5		Alioth		166° 18.3		55° 52.3 N		269° 33.4		26.1																									

GMT		ARIES		VENUS		-4.2		MARS		+1.7		JUPITER		-2.1		SATURN		+0.1		STARS			SUN			MOON					Lat	Twilight		Sunrise	24	Moonrise		26		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name			SHA		Dec		GHA		v		Dec		d	HP	N 72°	Nautical	Civil		25	
24	S a t u r d a y	00	272° 20.3	225° 54'.2	14° 36'.2 N	168° 22'.5	23° 48'.3 N	79° 22'.4	4° 06'.2 S	8° 56'.4	21° 57'.2 S	23° 59'.1	57.2	23° 59'.1	57.2	23° 59'.1	57.2	23° 59'.1	57.2	Acamar	315° 16'.6	40° 14'.1 S	179° 24'.4	23° 24'.4 N	181° 04'.3	3.3	19° 17'.0 N	1'.6	61'.2	N 70°	-	-	-	-	01:09	02:18	04:08			
		01	287° 22.8	240° 54'.0	36'.9	183° 23'.2	48'.1	94° 24'.8	06'.3	183° 23'.2	48'.1	94° 24'.8	06'.3	183° 23'.2	48'.1	94° 24'.8	06'.3	183° 23'.2	48'.1	Achernar	335° 25'.1	57° 08'.7 S	194° 24'.3	24'.4	195° 26'.6	3.3	18'.6	1'.4	68°	-	-	-	-	-	02:04	03:11	04:44			
		02	302° 25.2	255° 53'.9	37'.6	198° 23'.9	48'.0	109° 27'.1	06'.3	39° 01'.7	57.2	173° 06'.1	63'.2	173° 06'.1	63'.2	173° 06'.1	63'.2	173° 06'.1	63'.2	Acruar	173° 06'.1	63° 12'.0 S	209° 24'.2	24'.3	209° 48'.9	3.3	20.0	1'.3	66°	-	-	-	-	-	02:37	03:44	05:10			
		03	317° 27.7	270° 53'.7	38'.4	213° 24'.9	47'.8	124° 29'.5	06'.4	54° 04'.4	57.2	255° 10'.8	29° 00'.0 S	255° 10'.8	29° 00'.0 S	255° 10'.8	29° 00'.0 S	255° 10'.8	29° 00'.0 S	Adhara	255° 10'.8	29° 00'.0 S	224° 24'.0	24'.3	224° 11'.2	3.3	21'.3	1'.1	64°	-	-	-	01:33	03:01	04:08	05:30				
		04	332° 30'.1	285° 53'.5	39'.1	228° 25'.2	47'.7	139° 31'.9	06'.4	69° 07'.0	57.2	347° 32'.6	154° 34'.3	66'.5	84° 09'.7	57.2	254° 23'.8	24'.2	252° 55'.7	3.3	23.4	0'.8	239° 23'.9	24'.2	238° 33'.5	3.2	22.4	1'.0	62°	-	-	-	02:11	03:21	04:27	05:46				
		05	347° 32'.6	300° 53'.3	39'.8	243° 25'.9	47'.5	154° 34'.3	06'.5	84° 09'.7	57.2	254° 23'.8	24'.2	252° 55'.7	3.3	23.4	0'.8	239° 23'.9	24'.2	Aldebaran	290° 46'.6	16° 32'.4 N	239° 23'.9	24'.2	238° 33'.5	3.2	22.4	1'.0	60°	-	-	00:52	02:37	03:37	04:42	05:59				
		06	2° 35'.1	315° 53'.2	40'.5	258° 26'.6	47'.4																																	

		ARIES		VENUS		-4.1		MARS		+1.7		JUPITER		-2.1		SATURN		+0.1		STARS			SUN		MOON			Lat	Twilight		Sunrise	27		Moonrise		29																	
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		-		-		-		05:32		07:37		09:30	
27	00	275° 17.7		225° 40.3		15° 28.0 N		169° 11.7		23° 36.9 N		82° 12.4		4° 10.2 S		12° 07.8		21° 56.9 S		Acamar		315° 16.6		40° 14.1 S		179° 14.9		23° 19.1 N		137° 29.4		7.3		15° 19.8 N		7.5		59.5		N 70°		-		-		-		06:04		07:55		09:39	
		290° 20.2		240° 40.1		28.7		184° 12.4		36.7		97° 14.7		10.3		27° 10.4		56.9		Achernar		335° 25.0		57° 08.7 S		194° 14.7		19.0		151° 55.7		7.4		12.3		7.6		59.4		68°		-		-		-		06:27		08:09		09:47	
		305° 22.6		255° 39.8		29.4		199° 13.1		36.6		112° 17.1		10.3		42° 13.1		56.9		Acrux		173° 06.1		63° 12.0 S		209° 14.6		18.9		166° 22.1		7.5		04.7		7.7		66°		-		-		-		06:45		08:21		09:54			
		320° 25.1		270° 39.6		30.1		214° 13.8		36.4		127° 19.4		10.4		57° 15.7		56.9		Adhara		255° 10.8		28° 59.9 S		224° 14.5		18.8		180° 48.6		7.6		14° 57.0 N		7.8		59.3		64°		-		01:37		07:00		08:31		09:59			
		335° 27.6		285° 39.4		30.8		229° 14.5		36.2		142° 21.8		10.5		72° 18.4		56.9		Aldebaran		290° 46.6		16° 32.4 N		239° 14.3		18.7		195° 15.2		7.6		49.2		7.9		62°		-		02:14		07:12		08:39		10:04					
		350° 30.0		300° 39.2		31.5		244° 15.2		36.0		157° 24.1		10.5		87° 21.1		56.9																																			
		5° 32.5		315° 39.0		32.2		259° 15.9		35.9		172° 26.5		10.6		102° 23.7		56.9		Alioth		166° 18.3		55° 52.3 N		269° 14.1		18.5		224° 08.6		7.8		33.4		8.0		59.2		N 58°		-		01:45		03:00		07:31		08:52		10:11	

2017 Jun 30, Jul. 1, 2 (Fri, Sat, Sun)

	GMT	ARIES	VENUS	-4.1	MARS	+1.7	JUPITER	-2.0	SATURN	+0.1	STARS			SUN		MOON				Lat	Twilight		Sunrise	30	Moonrise		2	
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil					
F r i d a y	30 00	278° 15.1	225° 23.1	16° 17.9 N	170° 01'6	23° 23.8 N	85° 00'9	4° 14'8 S	15° 18'9	21° 56'6 S	Acamar	315° 16'6	40° 14.1 S	179° 05'7	23° 10.1 N	100° 39'0	12.9	3° 55.9 N	10.5	56.7	N 70°	-	-	-	11:16	12:57	14:37	
	01	293° 17.6	240° 22.9	18'6	185° 02'3	23'6	100° 03'3	23'6	30° 21'6	56'6	Achernar	335° 25'0	57° 08.7 S	194° 05'6	09'9	115° 10'9	12.9	45.4	10.5	56'6	68°	-	-	-	11:18	12:53	14:27	
	02	308° 20.1	255° 22'6	19'3	200° 03'0	23'4	115° 05'6	14'9	45° 24'2	56'6	Acruz	173° 06'2	63° 12.0 S	209° 05'4	09'8	129° 42'8	13'0	34'9	10'6	66°	-	-	00:21	11:22	12:48	14:11		
	03	323° 22.5	270° 22.4	20'0	215° 03'7	23'2	130° 07'9	15'0	60° 26'9	56'6	Adhara	255° 10'8	28° 59.9 S	224° 05'3	09'6	144° 14'8	13'0	24'3	10'5	64°	-	-	01:41	11:24	12:46	14:06		
	04	338° 25.0	285° 22.1	20'7	230° 04'4	23'0	145° 10'3	15'0	75° 29'5	56'6	Aldebaran	290° 46'5	16° 32.4 N	239° 05'2	09'5	158° 46'8	13'1	13'8	10'6	56'5	62°	-	-	02:17	11:25	12:44	14:01	
	05	353° 27.9	300° 21'8	21'3	245° 05'1	22'9	160° 12'6	15'1	90° 32'2	56'6				254° 05'1	09'3	173° 18'9	13'1	03'2	10'5	60°	-	-	01:04	02:42	11:26	12:42	13:56	
	06	8° 29.4	315° 21'6	22'0	260° 05'8	22'7	175° 14'9	15'2	105° 34'8	56'6	Alioth	166° 18'3	55° 52'3 N	269° 04'9	09'1	187° 51'0	13'2	2° 52'7 N	10'6		N 58°	-	-	01:49	03:02	11:27	12:41	13:53
	07	23° 32.4	330° 21'3	22'7	275° 06'5	22'5	190° 17'2	15'2	120° 37'5	56'6	Alkaid	152° 56'7	49° 14'0 N	284° 04'8	09'0	202° 23'2	13'2	42'1	10'5	56'4	56°	-	-	02:17	03:18	11:28	12:40	13:49
	08	38° 34'8	345° 21'0	23'4	290° 07'2	22'3	205° 19'6	15'3	135° 40'1	56'6	Alnair	27° 40'1	46° 52'3 S	299° 04'7	08'8													

2017 July 3, 4, 5 (Mon, Tue, Wed)

[illegible]

2017 July 6, 7, 8 (Thur, Fri, Sat)

		ARIES		VENUS		-4.1		MARS		+1.7		JUPITER		-2.0		SATURN		+0.1		STARS				SUN		MOON				Lat	Twilight		Civil	Sunrise	6	Moonrise		7	8							
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		v		Dec		d	HP	N 72°	-	-	-	-	-	-						
Thurs day	00	284° 12' 0		224° 39'.4		17° 51'.0 N		171° 43'.5		22° 52'.8 N		90° 34'.0		4° 25'.5 S		21° 40'.2		21° 56'.1 S		Acamar		315° 16'.5		40° 14'.0 S		178° 49'.2		22° 41'.1 N		35° 43'.9		13'.0		16° 54'.7 S		4'.9		54'.0		N 70°	-	-	-	20:42	22:07	22:56
	01	299° 12'.4		239° 39.0		51'.6		186° 44'.2		52'.5		105° 36'.3		25'.6		36° 42'.8		56'.1		Achernar		335° 24'.5		57° 08'.7 S		193° 49'.1		40'.9		50° 15'.9		12'.9		59'.6		4'.9		68°		-	-	-	19:56	21:05	21:55	
	02	314° 14'.9		254° 38'.7		52'.2		201° 45'.0		52'.3		120° 38'.5		25'.7		51° 45'.4		56'.1		Acruz		173° 06'.2		63° 12'.0 S		208° 49'.0		40'.6		64° 47'.8		13'.0		17° 04'.5 S		4'.8		66°		-	-	00:59	19:27	20:31	21:20	
	03	329° 17'.4		269° 38'.3		52'.8		216° 45'.7		52'.1		135° 40'.8		25'.8		66° 48'.1		56'.1		Adhara		255° 10'.8		28° 59'.9 S		223° 48'.9		40'.4		79° 19'.8		12'.9		09'.3		4'.7		64°		-	-	01:54	19:04	20:06	20:55	
	04	344° 19'.8		284° 38'.0		53'.4		231° 46'.4		51'.8		150° 43'.1		25'.9		81° 50'.7		56'.1		Aldebaran		290° 46'.5		16° 32'.4 N		238° 48'.8		40'.1		93° 51'.7		12'.9		14'.0		4'.7		62°		-	-	02:26	18:47	19:46	20:35	
	05	359° 22'.3		299° 37'.6		54'.0		246° 47'.1		51'.6		165° 45'.4		26'.0		96° 53'.4		56'.1								253° 48'.7		39'.9		108° 23'.6		12'.9		18'.7		4'.5		60°		-	01:20	02:50	18:32	19:30	20:19	
	06	14° 24'.7		314° 37'.3		54'.6		261° 47'.8		51'.3		180° 47'.6		26'.0		111° 56'.0		56'.1		Alioth		166° 18'.4		55° 52'.3 N		268° 48'.6		39'.6		122° 55'.5		12'.8		23'.2		4'.5		N 58°		-	01:59	03:09	18:20	19:16	20:06	
	07	29° 27'.2		329° 36'.9		55'.2		276° 48'.6		51'.1		195° 50'.0		26'.1		126° 58'.7		56'.1		Alkaid		152° 56'.7		49° 14'.0 N		283° 48'.5		39'.3		137° 27'.3		12'.8		27'.7		4'.5		56°		-	02:25	03:24	18:09	19:05	19:54	
	08	44° 29'.7		344° 36'.6		55'.8		291° 49'.3		50'.9		210° 52'.3		26'.2		142° 01'.3		56'.1		Alnair		27° 40'.0		46° 52'.3 S		298° 48'.4		39'.1		151° 59'.1		12'.8		32'.2		4'.3		54°		01:14	02:45	03:38	17:59	18:54	19:44	
	09	59° 32'.1		359° 36'.2		56'.5		306° 50'.0		50'.6		225° 54'.6		26'.3		157° 03'.9		56'.1		Alnilam		275° 43'.9		1° 11'.6 S		313° 48'.3		38'.8		166° 30'.9		12'.8		36'.5		4'.2		52°		01:49	03:02	03:49	17:51	18:45	19:35	
	10	74° 34'.6		14° 35'.9		57'.1		321° 50'.7		50'.4		240° 56'.9		26'.4		172° 06'.6		56'.1		Alphard		217° 53'.7		8° 44'.1 S		328° 48'.2		38'.6		181° 02'.7		12'.7		40'.7		4'.2		50°		02:14	03:16	04:00	17:43	18:37	19:26	
	1																																													

2017 July 9, 10, 11 (Sun, Mon, Tue)

GMT		ARIES			VENUS			-4.1			MARS			+1.7			JUPITER			-2.0			SATURN			+0.1			STARS			SUN			MOON			Lat	Twilight		Sunrise		Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	9	11																		
g	00	287° 07.4	224° 12.8	18° 33.4 N	172° 35'6	22° 34.9 N	93° 18'5	4° 31'7 S	24° 50'2	21° 55'9 S	Acamar	315° 16'5	40° 14'0 S	178° 42'1	22° 21'3 N	1° 08'0	11'6	19° 18'3 S	1'2	54.4	N 70°	-	-	-	-	23:09	23:11	23:11																	
	01	302° 09.8	239° 12.4	34.0	187° 36'3	34.6	108° 20'8	31.8	57° 52'8	55.9	Achernar	335° 24'9	57° 08'7 S	193° 42'0	21.0	15° 38'6	11'6	17.1	1'4	68°	N 70°	-	-	-	-	23:09	23:11	23:11																	
	02	317° 12.3	254° 12.0	34.5	202° 37.0	34.4	123° 23.1	31.9	54° 55'4	55.9	Acruz	173° 06'2	63° 12'0 S	208° 41'9	20.7	30° 09'2	11'6	15.7	1'4	66°	N 70°	-	-	-	-	23:09	23:11	23:11																	
	03	332° 14.8	269° 11.6	35.1	217° 37.8	34.1	138° 25.3	32.0	69° 58'1	55.9	Adhara	255° 10'7	28° 59'9 S	223° 41'8	20.4	44° 39'8	11'6	14.3	1'6	64°	N 70°	-	-	01:13	21:55	22:18	22:33																		
	04	347° 17.2	284° 11.2	35.7	232° 38'5	33.8	153° 27'6	32.1	85° 00'7	55.9	Aldebaran	290° 46'5	16° 32'4 N	238° 41'8	20.1	59° 10'4	11'6	12.7	1'6	62°	N 70°	-	-	02:02	21:32	21:59	22:19																		
	05	2° 19.7	299° 10.8	36.2	247° 39.2	33.6	168° 29.9	32.2	100° 03'4	55.9					253° 41'7	19.8	73° 41'0	11.5	11.1	1'7	60°	N 70°	-	-	02:32	21:15	21:44	22:07																	
	06	17° 22.2	314° 10.4	36.8	262° 40'0	33.3	183° 32.2	32.3	115° 06'0	55.9	Alioth	166° 18'4	55° 52'3 N	268° 41'6	19.5	88° 11'5	11'6	09.4	1'8	58°	N 58°	-	01:29	02:55	21:00	21:32	21:57																		
	07	32° 24.6	329° 10.0	37.4	277° 40'7	33.1	198° 34.4	32.4	130° 08'6	55.9	Alkaid	152° 56'7	49° 14'0 N	283° 41'5	19.2	102° 42'1	11'6	07.6	1'9	56°	N 58°	-	02:05	03:13	20:47	21:21	21:49																		
	08	47° 27.1	344° 09.6	37.9	292° 41'4	32.8	213° 36.7	32.4	145° 11'3	55.9	Alnair	27° 40'0	46° 52'3 S	298° 41'4																															

2017 July 12, 13, 14 (Wed, Thur, Fri)

	GMT	ARIES	VENUS	-4.1	MARS	+1.7	JUPITER	-2.0	SATURN	+0.2	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	12	13	14	
Wednesday	12 00	290° 04'8	223° 43'2	19° 12'6 N	173° 28'4	22° 15'4 N	96° 01'8	4° 38'4 S	27° 59'7	21° 55'7 S	Acamar	315° 16'5	40° 14'0 S	178° 36'0	21° 58'0 N	326° 03'3	12'1	14° 01'3 S	7'4	55'5	N 70°	-	-	-	23:27	23:17	23:09
	01	305° 07'3	238° 42'7	13'1	188° 29'2	15'2	111° 04'0	38'5	43° 02'3	55'7	Achernar	335° 24'9	57° 08'7 S	193° 35'9	57'7	340° 34'4	12'2	13° 53'9 S	7'4		68°	-	-	-	23:09	23:07	23:05
	02	320° 09'7	253° 42'3	13'7	203° 29'9	14'9	126° 06'3	38'6	58° 05'0	55'7	Acruz	173° 06'3	63° 12'0 S	208° 35'8	57'3	355° 05'6	12'2	46'5	7'5	55'6	66°	-	-	01:27	22:44	22:52	22:59
	03	335° 12'2	268° 41'9	14'2	218° 30'7	14'6	141° 08'5	38'7	73° 07'6	55'7	Adhara	255° 10'7	28° 59'9 S	223° 35'8	57'0	9° 36'8	12'2	39'0	7'6		64°	-	-	02:10	22:34	22:46	22:56
	04	350° 14'7	283° 41'4	14'7	233° 31'4	14'3	156° 10'8	38'8	88° 10'2	55'7	Aldebaran	290° 46'5	16° 32'4 N	238° 35'7	56'6	24° 08'0	12'3	31'4	7'7		62°	-	00:33	02:39	22:25	22:41	22:54
	05	5° 17'1	298° 41'0	15'2	248° 32'1	14'0	171° 13'1	38'9	103° 12'9	55'7				253° 35'6	56'3	38° 39'3	12'2	23'7	7'7		60°	-	01:39	03:00	22:18	22:36	22:52
	06	20° 19'6	313° 40'6	15'7	263° 32'9	13'8	186° 15'3	39'0	118° 15'5	55'7	Alioth	166° 18'4	55° 52'3 N	268° 35'5	55'9	53° 10'5	12'3	16'0	7'8		N 58°	-	02:12	03:18	22:12	22:32	22:51
	07	35° 22'0	328° 40'1	16'3	278° 33'6	13'5	201° 17'6	39'1	133° 18'1	55'7	Alkaid	152° 56'7	49° 14'0 N	283° 35'4	55'6	67° 41'8	12'2	08'2	7'8	55'7	56°	00:31	02:35	03:32	22:06	22:29	22:49
	08	50° 24'5	343° 39'7	16'8	293° 34'4	13'2	216° 19'8	39'2	148° 20'7	55'7	Alnair	27° 40'0	46° 52'3 S	298° 35'4	55'2	82° 13'0	12'3	00'4	7'9		54°	01:31	02:54	03:45	22:0		

2017 July 15, 16, 17 (Sat, Sun, Mon)

	GMT	ARIES	VENUS			MARS			JUPITER			SATURN			STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise			
			GHA	GHA	Dec	GHA	Dec		GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		15	Moonrise 16		17
Saturday	00		293° 02'.2	223° 10'.6	19° 48'.4 N	174° 22'.1	21° 54'.5 N		98° 43'.8	4° 45'.6 S	31° 08'.7	21° 55'.5 S			Acamar	315° 16'.5	40° 14'.0 S	178° 30'.9	21° 31'.3 N	291° 45'.6	12'.3	2° 45'.6 S	10'.8	57'.2	N 70°	-	-	-	23:01	22:53	22:44	
	01		308° 04'.7	238° 10'.1	48'.8	189° 22'.8	54'.2		113° 46'.0	45'.7	46° 11'.3	55'.5			Achernar	335° 24'.8	57° 08'.7 S	193° 30'.8	30'.9	306° 16'.9	12'.3	34'.8	10'.9		68°	-	-	-	23:03	23:01	22:59	
	02		323° 07'.1	253° 09'.7	49'.3	204° 23'.6	53'.9		128° 48'.3	45'.8	61° 14'.0	55'.5			Acruz	173° 06'.3	63° 12'.0 S	208° 30'.8	30'.5	320° 48'.2	12'.2	23'.9	10'.9		66°	-	-	01:40	23:05	23:13	23:22	
	03		338° 09'.6	268° 09'.2	49'.8	219° 24'.3	53'.6		143° 50'.5	45'.9	76° 16'.6	55'.5			Adhara	255° 10'.7	28° 59'.9 S	223° 30'.7	30'.2	335° 19'.4	12'.2	13'.0	11'.0	57'.3	64°	-	-	02:19	23:07	23:18	23:31	
	04		353° 12'.1	283° 08'.7	50'.2	234° 25'.1	53'.3		158° 52'.8	46'.0	91° 19'.2	55'.5			Aldebaran	290° 46'.5	16° 32'.4 N	238° 30'.6	29'.8	349° 50'.6	12'.2	02'.0	10'.9		62°	-	00:58	02:45	23:08	23:22	23:38	
	05		8° 14'.5	298° 08'.2	50'.7	249° 25'.8	53'.0		173° 55'.0	46'.1	106° 21'.8	55'.5						253° 30'.6	29'.4	4° 21'.8	12'.2	1° 51'.1 S	11'.0		60°	-	01:49	03:06	23:08	23:25	23:45	
	06		23° 17'.0	313° 07'.8	51'.2	264° 26'.6	52'.7		188° 57'.2	46'.2	121° 24'.4	55'.5			Alioth	166° 18'.5	55° 52'.3 N	268° 30'.5	29'.0	18° 53'.0	12'.2	40'.1	11'.0	57'.4	N 58°	-	02:19	03:22	23:09	23:28	23:50	
	07		38° 19'.5	328° 07'.3	51'.6	279° 27'.3	52'.4		203° 59'.5	46'.3	136° 27'.1	55'.5			Alkaid	152° 56'.8	49° 14'.0 N	283° 30'.4	28'.6	33° 24'.2	12'.1	29'.1	11'.0		56°	00:53	02:41	03:37				

GMT		ARIES			VENUS			-4.0			MARS			+1.7			JUPITER			-1.9			SATURN			+0.2			STARS			SUN			MOON							Lat	Twilight		Sunrise	Moonrise																																																																																																																																																																																																																																																																																																																																																																																																																																		
		GHA			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			Name			SHA			Dec			GHA			Dec			GHA			v			Dec			d			HP			N 72°	Nautical	Civil		18	19	20																																																																																																																																																																																																																																																																																																																																																																																																															
18	Tues day	00	295° 59'6	222° 35'2	20° 20'3 N	175° 16'5	21° 32'1 N	101° 24'6	4° 53'3 S	34° 17'2	21° 55'4 S	Acamar	315° 16'4	40° 14'0 S	178° 26'9	21° 01'4 N	255° 44'0	9'0	10° 19'0 N	10'1	59'2	N 70°	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

2017 July 21, 22, 23 (Fri, Sat, Sun)

GMT		ARIES		VENUS		-4.0	MARS		+1.7	JUPITER		-1.9	SATURN		+0.2	STARS			SUN		MOON					Lat	Twilight		Sunrise		Moonrise							
		GHA		GHA		Dec	GHA		Dec	GHA		Dec	GHA		Dec	Name		SHA		Dec	GHA		Dec	GHA		v	Dec		d	HP	N 72°	Nautical	Civil	21		Moonrise 22		23
21	Fri	00	298° 57'0	221° 57'2	20° 48'2 N	176° 11'7	21° 08'3 N	104° 04'3	5° 01'4 S	37° 25'0	21° 55'3 S	178° 24'0	20° 28'2 N	214° 17'6	4'3	18° 50'2 N	3'0	60'6	178° 24'0	20° 28'2 N	214° 17'6	4'3	18° 50'2 N	3'0	60'6	214° 17'6	4'3	18° 50'2 N	3'0	60'6	N 72°	-	-	-	-	-	-	
		01	313° 59'5	236° 56'7	48'5	191° 12'5	08'0	119° 06'5	01'5	52° 27'6	55'3	193° 24'0	27'7	228° 40'9	4'2	53'2	2'9		193° 24'0	27'7	228° 40'9	4'2	53'2	2'9		228° 40'9	4'2	53'2	2'9		68°	-	-	01:15	-	00:45	02:06	
		02	329° 02'0	251° 56'1	48'9	206° 13'3	07'6	134° 08'7	01'6	67° 30'2	55'3	208° 23'9	27'2	243° 04'1	4'2	56'1	2'8		208° 23'9	27'2	243° 04'1	4'2	56'1	2'8		243° 04'1	4'2	56'1	2'8		66°	-	-	02:06	00:26	01:19	02:36	
		03	344° 04'4	266° 55'6	49'3	221° 14'0	07'3	149° 10'9	01'8	82° 32'8	55'3	223° 23'9	26'7	257° 27'3	4'2	58'9	2'6	60'7	223° 23'9	26'7	257° 27'3	4'2	58'9	2'6	60'7	257° 27'3	4'2	58'9	2'6	60'7	64°	-	-	02:37	00:49	01:44	02:58	
		04	359° 06'9	281° 55'0	49'6	236° 14'8	07'0	164° 13'1	01'9	97° 35'4	55'3	238° 23'9	26'2	271° 50'5	4'1	19° 01'5 N	2'5		238° 23'9	26'2	271° 50'5	4'1	19° 01'5 N	2'5		271° 50'5	4'1	19° 01'5 N	2'5		62°	-	01:32	03:00	01:07	02:03	03:16	
		05	14° 09'4	296° 54'5	50'0	251° 15'6	06'6	179° 15'3	02'0	112° 38'0	55'3	253° 23'8	25'8	286° 13'6	4'2	04'0	2'3		253° 23'8	25'8	286° 13'6	4'2	04'0	2'3		286° 13'6	4'2	04'0	2'3		60°	-	02:08	03:18	01:22	02:19	03:30	
		06	29° 11'8	311° 54'0	50'3	266° 16'3	06'3	194° 17'5	02'1	127° 40'6	55'3	268° 23'8	25'3	300° 36'8	4'1	06'3	2'3		268° 23'8	25'3	300° 36'8	4'1	06'3	2'3		300° 36'8	4'1	06'3	2'3									

	GMT	ARIES		VENUS		-4.0		MARS		+1.7		JUPITER		-1.9		SATURN		+0.2		STARS			SUN		MOON					Lat	Twilight		Sunrise	24	Moonrise		26						
		Nautical	Civil	25	26	24	25	26	24	25	26	24	25	26	24	25	26	24	25	26	24	25	26	24	25	26	24	25	26		24	25			26								
Monday	24	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	-	-	-	02:32	04:48	06:49								
		301° 54'5	221° 16'8	21° 11'7 N	177° 07'8	20° 43'2 N	106° 42'8	5° 10'0 S	40° 32'1	21° 55'3 S	Acamar	315° 16'4	40° 14'0 S	178° 22'4	19° 51'9 N	170° 25'4	6'0	16° 35'6 N	6'5	60'0	N 70°	316° 56'9	226° 16'3	12'0	192° 08'5	42'8	121° 45'0	10'1	55° 34'7	55'3	Achernar	335° 24'7	57° 08'7 S	193° 22'4	51'4	184° 50'4	6'1	29'1	6'7	03:17	05:12	07:02	
		01	316° 56'9	236° 16'3	12'0	192° 08'5	42'8	121° 45'0	10'1	55° 34'7	55'3	Acru	335° 24'7	57° 08'7 S	193° 22'4	51'4	184° 50'4	6'1	29'1	6'7	68°	02	331° 59'4	251° 15'7	12'3	207° 09'3	42'4	136° 47'2	10'2	70° 37'3	55'3	Adra	173° 06'4	63° 11'9 S	208° 22'3	50'9	199° 15'5	6'2	22'4	6'7	01:36	03:46	05:31
		03	347° 01'9	266° 15'1	12'6	222° 10'1	42'1	151° 49'3	10'3	85° 39'9	55'3	Achura	255° 10'7	28° 59'8 S	223° 22'3	50'3	213° 40'7	6'2	15'7	6'8	59'9	04	347° 01'9	266° 15'1	12'6	222° 10'1	42'1	151° 49'3	10'3	85° 39'9	55'3	Adra	255° 10'7	28° 59'8 S	223° 22'3	50'3	213° 40'7	6'2	15'7	6'8	02:18	04:08	05:46
		05	2° 04'3	281° 14'5	12'9	237° 10'9	41'7	166° 51'5	10'5	100° 42'5	55'3	Aldebaran	290° 46'4	16° 32'4 N	238° 22'3	49'8	228° 05'9	6'3	08'9	7'0	59'9	06	2° 04'3	281° 14'5	12'9	237° 10'9	41'7	166° 51'5	10'5	100° 42'5	55'3	Aldebaran	290° 46'4	16° 32'4 N	238° 22'3	49'8	228° 05'9	6'3	08'9	7'0	02:46	04:25	05:58
		07	17° 06'8	296° 13'9	13'2	252° 11'7	41'4	181° 53'7	10'6	115° 45'1	55'3					253° 22'3	49'3	242° 31'2	6'4	01'9	7'0	62°	08	17° 06'8	296° 13'9	13'2	252° 11'7	41'4	181° 53'7	10'6	115° 45'1	55'3					01:46</						

2017 July 27, 28, 29 (Thur, Fri, Sat)

GMT		ARIES			VENUS			-4.0			MARS			+1.7			JUPITER			-1.9			SATURN			+0.3			STARS							SUN			MOON							Lat	Twilight		Civil	Sunrise	27	Moonrise		29
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	-	-	-	08:41	10:26	12:09														
Thurs day	00	304° 51'.9	220° 34'.3	21° 30'.7 N	178° 04'.7	20° 16'.7 N	109° 20'.2	5° 19'.0 S	43° 38'.5	21° 55'.3 S	178° 22'.1	19° 12'.7 N	131° 49'.6	11'.6	5° 37'.2 N	10'.7	57'.6	N 70°	-	-	-	00:39	08:46	10:25	12:01																													
	01	319° 54'.3	235° 33'.7	30'.9	193° 05'.6	16'.3	124° 12'.2	22'.3	58° 41'.1	25'.3	193° 22'.1	12'.1	146° 20'.2	11'.6	26'.5	10'.7	68°	-	-	-	01:54	08:51	10:25	11:55																														
	02	334° 56'.8	250° 33'.1	31'.2	208° 06'.3	15'.9	139° 24'.5	19'.2	73° 43'.7	55'.3	208° 22'.1	11'.5	160° 50'.8	11'.8	15'.8	10'.7	57'.5	66°	-	-	02:30	08:55	10:24	11:50																														
	03	349° 59'.3	265° 32'.5	31'.4	223° 07'.1	15'.5	154° 26'.7	19'.4	88° 46'.3	55'.3	223° 22'.1	11'.0	175° 21'.6	11'.7	05'.1	10'.7		62°	-	01:14	02:56	08:58	10:24	11:46																														
	04	5° 01'.7	280° 31'.9	31'.6	238° 07'.8	15'.2	169° 28'.9	19'.5	103° 48'.8	55'.3	238° 22'.1	10'.4	189° 52'.3	11'.8	4° 54'.4 N	10'.8		64°	-	01:59	03:16	09:01	10:23	11:42																														
	05	20° 04'.2	295° 31'.3	31'.8	253° 08'.6	14'.8	184° 31'.0	19'.6	118° 51'.4	55'.3	253° 22'.1	09'.8	204° 23'.1	11'.9	43'.6	10'.7	57'.4	60°	-	02:28	03:32	09:04	10:23	11:39																														
	06	35° 06'.7	310° 30'.6	32'.1	268° 09'.4	14'.4	199° 33'.2	19'.7	133° 54'.0	55'.3	268° 22'.1	09'.3	218° 54'.0	12'.0	32'.9	10'.8		N 58°	01:07	02:49	03:45	09:06	10:22	11:36																														
	07	50° 09'.1	325° 30'.0	32'.3	283° 10'.2	14'.0	214° 35'.4	19'.9	148° 56'.6	55'.3	283° 22'.1	08'.7	233° 25'.0	12'.0	22'.1	10'.7		56°	01:48	03:07	03:57	09:08	10:22	11:34																														
	08	65° 11'.6	340° 29'.4	32'.5	298° 11'.0	13'.6	229° 37'.6	20'.0	163° 59'.2	55'.3	298° 22'.1	08'.1	247° 56'.0	12'.0	11'.4	10'.8	57'.3	54°	02:15	03:21	04:07	09:09	10:22	11:32																														
	09	80° 14'.1	355° 28'.8	32'.7	313° 11'.8	13'.3	244° 39'.8	20'.1	179° 01'.7	55'.3	313° 22'.1	07'.6	262° 27'.0	12'.1	00'.6	10'.8		52°	02:35	03:34	04:16	09:11	10:22	11:30																														
	10	95° 16'.5	10° 28'.2	33'.0	328° 12'.6	12'.9	259° 41'.9	20'.3	194° 04'.3	55'.3	328° 22'.2	07'.0	276° 58'.1	12'.2	3° 49'.8 N	10'.8	57'.2	50°	02:52	03:44	04:24	09:12	10:21	11:28																														
	11	110° 19'.0	25° 27'.6	33'.2	343° 13'.4	12'.5	274° 44'.1	20'.4	209° 06'.9	55'.3	343° 22'.2	06'.4	291° 29'.3	12'.2	39'.0	10'.8		45°	03:23	04:07	04:41	09:16	10:21	11:24																														
	12	125° 21'.5	40° 27'.0	21° 33'.4 N	358° 14'.2	20° 12'.1 N	289° 46'.3	5° 20'.5 S	224° 09'.5	21° 55'.3 S	358° 22'.2	19° 05'.9 N	306° 00'.5	12'.3	3° 28'.2 N	10'.7	57'.2	N 40°	03:46	04:24	04:55	09:18	10:20	11:20																														
	13	140° 23'.9	55° 26'.4	33'.6	13° 15'.0	11'.7	304° 48'.5	20'.6	239° 12'.1	55'.3	13° 22'.2	05'.3	320° 31'.8	12'.3	17'.5	10'.8	57'.1	35°	04:04	04:38	05:06	09:20	10:20	11:18																														
	14	155° 26'.4	70° 25'.8	33'.8																																																		

2017 Jul 30, 31, Aug. 1 (Sun, Mon, Tue)

GMT	ARIES			VENUS			-4.0			MARS			+1.7			JUPITER			-1.9			SATURN			+0.3			STARS			SUN			MOON						Lat	Twilight		Sunrise	30	Moonrise	
	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	30	31	1									
S u n d a y	00	307° 49'3	219° 49'8	21° 44'9 N	179° 02'4	19° 48'9 N	111° 56'5	5° 28'4 S	46° 44'2	21° 55'3 S	Acamar	315° 16'3	40° 14'0 S	178° 23'2	18° 30'6 N	98° 24'0	14'1	6° 54'8 S	9'5	55'3	N 70°	-	-	-	13:50	15:34	16:23	17:23	18° 30'6 N	98° 24'0	14'1	6° 54'8 S	9'5	55'2	N 68°	-	-	-	01:19	13:35	15:09	16:44				
	01	322° 51'8	234° 49'2	45'0	194° 03'2	48'5	126° 58'6	28'5	61° 46'7	55'3	Acchernar	335° 24'7	57° 08'7 S	193° 23'2	30'0	112° 57'1	14'1	7° 04'3 S	9'5	55'2	N 70°	-	-	-	02:11	13:24	14:51	16:17	193° 23'2	30'0	112° 57'1	14'1	7° 04'3 S	9'5	55'2	N 68°	-	-	-	02:11	13:24	14:51	16:17			
	02	337° 54'2	249° 48'6	45'2	209° 04'0	48'1	142° 00'8	28'6	76° 49'3	55'3	Acruz	173° 06'4	63° 11'9 S	208° 23'2	29'4	127° 30'2	14'1	13'8	9'5	66°	-	-	-	02:42	13:14	14:36	15:56	208° 23'2	29'4	127° 30'2	14'1	13'8	9'5	66°	-	-	-	02:42	13:14	14:36	15:56					
	03	352° 56'7	264° 48'0	45'4	234° 04'9	47'7	157° 03'0	28'8	91° 51'9	55'3	Adhara	255° 10'7	28° 59'8 S	223° 23'2	28'8	142° 03'3	14'0	23'3	9'4	64°	-	-	-	01:34	03:05	13:06	14:24	223° 23'2	28'8	142° 03'3	14'0	23'3	9'4	64°	-	-	-	01:34	03:05	13:06	14:24					
	04	7° 59'2	279° 47'3	45'5	239° 05'7	47'3	172° 05'1	28'9	106° 54'4	55'3	Aldebaran	290° 46'4	16° 32'5 N	238° 23'3	28'2	156° 36'3	14'1	32'7	9'4	62°	-	-	-	02:12	03:24	12:59	14:14	238° 23'3	28'2	156° 36'3	14'1	32'7	9'4	62°	-	-	-	02:12	03:24	12:59	14:14					
	05	23° 01'6	294° 46'7	45'7	254° 06'5	46'9	187° 07'3	29'0	121° 57'0	55'3				253° 23'3	27'6	171° 09'4	14'1	42'1	9'4	55'1	60°	-	-	-	02:37	03:39	12:53	14:06	253° 23'3	27'6																

2017 August 2, 3, 4 (Wed, Thur, Fri)

	GMT	ARIES	VENUS	-4.0	MARS	+1.7	JUPITER	-1.9	SATURN	+0.3	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		2	3	4
Wednesday	00	310° 46.7	219° 03.8	21° 54.1 N	180° 01.1	19° 19.9 N	114° 31.8	5° 38.2 S	49° 49.0	21° 55.4 S	Acamar	315° 16.3	40° 13.9 S	178° 25.7	17° 45.8 N	65° 47.9	13.2	16° 12.8 S	5.5	54.2	N 72°	-	-	-	19:47	-	-
	01	325° 49.2	234° 03.1	54.2	195° 01.9	19.5	129° 33.9	38.3	64° 51.6	55.4	Achernar	335° 24.6	57° 08.7 S	193° 25.7	45.1	80° 20.1	13.2	18.3	5.4	68°	-	-	01:44	18:18	19:48	20:54	
	02	340° 51.6	249° 02.5	54.3	210° 02.7	19.1	144° 36.1	38.4	79° 54.1	55.4	Acruz	173° 06.4	63° 11.9 S	208° 25.8	44.5	94° 52.3	13.1	23.7	5.3	66°	-	00:55	02:54	17:12	18:20	19:16	
	03	355° 54.1	264° 01.8	54.4	225° 03.5	18.7	159° 38.2	38.6	94° 56.7	55.4	Adhara	255° 10.7	28° 59.8 S	223° 25.8	43.8	109° 24.4	13.1	29.0	5.3	64°	-	01:52	03:15	16:52	17:56	18:50	
	04	10° 56.6	279° 01.2	54.4	240° 04.3	18.2	174° 40.4	38.7	109° 59.3	55.4	Aldebaran	290° 46.3	16° 32.5 N	238° 25.9	43.2	123° 56.5	13.1	34.3	5.2	62°	-	02:24	03:32	16:35	17:37	18:31	
	05	25° 59.0	284° 00.5	54.5	255° 05.2	17.8	189° 42.5	38.8	125° 01.8	55.4				253° 25.9	42.5	138° 28.6	13.1	39.5	5.2	60°	00:50	02:47	03:46	16:21	17:22	18:14	
	06	41° 01.5	308° 59.9	54.6	270° 06.0	17.4	204° 44.7	39.0	140° 04.4	55.4	Alioth	166° 18.6	55° 52.3 N	268° 26.0	41.9	153° 00.7	13.0	44.7	5.0	N 58°	01:41	03:05	03:58	16:09	17:08	18:01	
	07	56° 04.0	323° 59.2	54.7	285° 06.8	17.0	219° 46.8	39.1	155° 06.9	55.4	Alkaid	152° 56.9	49° 14.0 N	283° 26.0	41.3	167° 32.7	13.0	49.7	5.0	56°	02:10	03:20	04:08	15:59	16:57	17:49	
	08	71° 06.4	338° 58.6	54.8	300° 07.6	16.6	234° 49.0	39.3	170° 09.5	55.4	Alnair	27° 39.8	46° 52.3 S	298° 26.1	40.6	182° 04.7	13.0	54.7	4.9	54°	02:32	03:33	04:17	15:50	16:47	17:39	
	09	86° 08.9	35																								

GMT	ARIES	VENUS	-4.0	MARS	+1.7	JUPITER	-1.8	SATURN	+0.3	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise			
										Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP		Nautical	Civil		5	Moonrise		
Saturday	00	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec				GHA	Dec	GHA					N 72°	-	-	01:00	-	22:25	21:57	
	01	313° 44'.1	218° 16'.4	21° 58'.2 N	181° 00'.5	18° 49'.7 N	117° 06'.1	5° 48'.3 S	52° 53'.1	21° 55'.5 S	Acamar	315° 16'.3	40° 13'.9 S	178° 29'.6	16° 58'.3 N	31° 22'.8	11'.6	19° 22'.0 S	0'.6	54'.5	N 70°	-	-	02:05	21:18	21:23	21:24
	02	328° 46'.6	233° 15'.7	58'.2	196° 01'.4	49'.3	132° 08'.2	48'.4	67° 55'.6	55'.5	Achernar	335° 24'.6	57° 08'.7 S	193° 29'.7	57'.7	45° 53'.4	11'.6	21'.4	0'.6	68°	-	-	02:40	20:28	20:48	21:00	
	03	343° 49'.1	248° 15'.0	58'.2	211° 02'.2	48'.8	147° 10'.3	48'.6	82° 58'.2	55'.5	Acruz	173° 06'.5	63° 11'.9 S	208° 29'.7	57'.0	60° 24'.0	11'.5	20'.8	0'.8	66°	-	01:25	03:05	19:56	20:23	20:41	
	04	358° 51'.5	263° 14'.4	58'.2	226° 03'.0	48'.4	162° 12'.5	48'.7	98° 00'.7	55'.5	Adhara	255° 10'.6	28° 59'.8 S	223° 29'.8	56'.3	74° 54'.5	11'.6	20'.0	0'.9	64°	-	02:07	03:24	19:33	20:03	20:26	
	05	13° 54'.0	278° 13'.7	58'.3	241° 03'.9	48'.0	177° 14'.6	48'.9	113° 03'.3	55'.5	Aldebaran	290° 46'.3	16° 32'.5 N	238° 29'.8	55'.6	89° 25'.1	11'.5	19'.1	0'.9	62°	-	02:35	03:40	19:14	19:47	20:13	
	06	28° 56'.5	293° 13'.0	58'.3	256° 04'.7	47'.6	192° 16'.7	49'.0	128° 05'.8	55'.5				253° 29'.9	55'.0	103° 55'.6	11'.6	18'.2	1'.0	60°	01:16	02:56	03:53	18:58	19:34	20:02	
	07	43° 58'.9	308° 12'.4	58'.3	271° 05'.5	47'.1	207° 18'.9	49'.2	143° 08'.4	55'.5	Alioth	166° 18'.6	55° 52'.2 N	268° 30'.0	54'.3	118° 26'.2	11'.5	17'.2	1'.2	58°	01:55	03:13	04:04	18:45	19:22	19:52	
	08	59° 01'.4	323° 11'.7	58'.3	286° 06'.4	46'.7	222° 21'.0	49'.3	158° 10'.9	55'.5	Alkaid	152° 56'.9	49° 14'.0 N	283° 30'.0	53'.6	132° 56'.7	11'.5	16'.0	1'.2	54'.6	02:21	03:27	04:14	18:34	19:12	19:44	
	09	74° 03'.8	338° 11'.0	58'.3	301° 07'.2																						

2017 August 8, 9, 10 (Tue, Wed, Thur)

GMT	ARIES	VENUS			-4.0	MARS			+1.7	JUPITER			-1.8	SATURN			+0.3	STARS			SUN			MOON					Lat	Twilight		Sunrise	8		Moonrise	
		GHA	GHA	Dec		GHA	Dec	GHA		Dec	GHA	Dec		Name	SHA	Dec		GHA	Dec	GHA	Dec	GHA	Dec	GHA	v	Dec	d	HP		Nautical	Civil		Mer. Pass.	Mer. Pass.	9	10
Tuesday	00	316° 41'.5	217° 27'.9	21° 57.0 N	182° 00'.9	18° 18'.4 N	119° 39'.4	5° 58'.8 S	55° 56'.3	21° 55.7 S	Acamar	315° 16'.2	40° 13'.9 S	178° 34'.9	16° 08'.5 N	355° 58'.3	11'.8	14° 47.4 S	6'.9	55.7	N 72°	-	-	01:37	21:44	21:34	21:25									
	01	331° 44'.0	232° 27'.2	57.0	197° 01'.7	17.9	134° 41'.5	58.9	70° 58'.8	55.7	Achernar	335° 24'.6	57° 08'.7 S	193° 34'.9	07.8	10° 29'.1	11.7	40.5	7.0		68°	-	-	02:24	21:23	21:21	21:19									
	02	346° 46'.5	247° 26'.5	56.9	212° 02'.6	17.5	149° 43'.7	59.1	86° 01'.3	55.7	Acruz	173° 06'.5	63° 11'.9 S	208° 35'.0	07.0	24° 59.8	11.7	33.5	7.1		66°	-	01:47	03:16	20:53	21:03										
	03	1° 48'.9	262° 25'.9	56.9	227° 03'.4	17.0	164° 45'.8	59.2	101° 03'.9	55.7	Adhara	255° 10'.6	28° 59'.8 S	223° 35'.1	06.3	39° 30'.5	11.7	26.4	7.2		64°	-	02:22	03:34	20:42	20:55										
	04	16° 51'.4	277° 25'.2	56.8	242° 04'.2	16.6	179° 47'.9	59.4	116° 06'.4	55.7	Aldebaran	290° 46'.3	16° 32'.5 N	238° 35'.2	05.6	54° 01'.2	11.8	19.2	7.3		62°	00:30	02:46	03:48	20:33	20:49										
	05	31° 53'.9	292° 24'.5	56.8	257° 05'.1	16.2	194° 50'.0	59.5	131° 09'.0	55.7				253° 35'.3	04.9	68° 32'.0	11.8	11.9	7.3	55.8	60°	01:36	03:05	04:00	20:25	20:44	21:01									
	06	46° 56'.3	307° 23'.8	56.7	272° 05'.9	15.7	209° 52'.1	59.7	146° 11'.5	55.7	Alioth	166° 18'.6	55° 52'.2 N	268° 35'.4	04.2	83° 02.8	11.8	04.6	7.4		N 58°	02:08	03:21	04:10	20:17	20:39	20:58									
	07	61° 58'.8	322° 23'.1	56.6	287° 06'.8	15.3	224° 54'.3	59.8	161° 14'.0	55.7	Alkaid	152° 56'.9	49° 14'.0 N	283° 35'.4	03.5	97° 33'.6	11.7	13° 57'.2 S	7.5		56°	02:30	03:34	04:19	20:11	20:35	20:56									
	08	77° 01'.3	337° 22'.5	56.6	302° 07'.6	14.8	239° 56'.4																													

2017 August 11, 12, 13 (Fri, Sat, Sun)

GMT		ARIES			VENUS			-4.0			MARS			+1.7			JUPITER			-1.8			SATURN			+0.3			STARS			SUN			MOON			Lat	Twilight		Sunrise	Moonrise										
		GHA			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			GHA			v			Dec			d	HP	N 72°	Nautical	Civil		11	12	13
11	F r i d a y	00	319° 39'0	216° 38'7	21° 50'6 N	183° 02'0	17° 45'9 N	122° 11'8	6° 09'6 S	58° 58'6	21° 56'0 S	74° 01'1	56'0	137° 14'0	09'8	74° 01'1	56'0	Acamar	315° 16'2	40° 13'9 S	178° 41'4	15° 16'3 N	321° 13'1	12'2	3° 48'6 S	10'8	57'1	57'2	57'1	N 70°	-	-	02:41	21:17	21:15	21:13																
		01	334° 41'4	231° 38'0	50'5	198° 02'9	45'5	198° 02'9	45'5	74° 01'1	56'0	137° 14'0	09'8	74° 01'1	56'0	Achernar	335° 24'5	57° 08'7 S	193° 41'5	15'5	335° 44'3	12'1	37'8	10'8	68°	-	-	01:18	03:07	21:17	21:20	21:23																				
		02	349° 43'9	246° 37'3	50'3	213° 03'7	45'0	152° 16'1	09'9	89° 03'7	56'0	167° 18'2	10'1	104° 06'2	56'0	Acruz	173° 06'5	63° 11'9 S	208° 41'6	14'8	350° 15'4	12'1	27'0	10'8	66°	-	-	02:05	03:27	21:17	21:24	21:32																				
		03	4° 46'4	261° 36'6	50'2	228° 04'6	44'6	162° 18'2	10'1	104° 06'2	56'0	167° 18'2	10'1	104° 06'2	56'0	Adhara	255° 10'6	28° 59'7 S	223° 41'7	14'0	4° 46'5	12'1	16'2	10'8	64°	-	-	02:35	03:43	21:17	21:27	21:39																				
		04	19° 48'8	276° 35'9	50'1	243° 05'5	44'1	182° 20'3	10'2	119° 08'7	56'0	137° 14'0	09'8	137° 14'0	09'8	Aldebaran	290° 46'3	16° 32'5 N	238° 41'8	13'3	19° 17'6	12'1	05'3	10'9	62°	01:09	02:57	03:56	21:17	21:30	21:46																					
		05	34° 51'3	291° 35'2	49'9	258° 06'3	43'7	197° 22'4	10'4	134° 11'2	56'0	137° 14'0	09'8	137° 14'0	09'8				253° 41'9	12'5	33° 48'7	12'1	2° 54'4 S	10'9	60°	01:52	03:14	04:07	21:17	21:33	21:51																					
		06	49° 53'7	306° 34'6	49'8	273° 07'2	43'2	212° 24'5	10'5	149° 13'8	56'0	164° 16'3	56'0	164° 16'3	56'0	Alioth	166° 18'6	55° 52'2 N	268° 42'0	11'8	48° 19'8	12'1	43'5	10'9	57'3	N 58°	02:19	03:29	04:17	21:17	21:36	21:56																				
		07	64° 56'2	321° 33'9	49'7	288° 08'0	42'7	227° 26																																												

2017 August 17, 18, 19 (Thur, Fri, Sat)

GMT	ARIES	VENUS			MARS	JUPITER			SATURN	STARS			SUN		MOON				Lat	Twilight		Sunrise	Moonrise				
		GHA	GHA	Dec		GHA	Dec	GHA		Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA		v	Dec		d	HP	Nautical	Civil	17
17 Thurs day		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	-	-	02:45	-	-	23:27
	00	325° 33.8	214° 59.2	21° 21.5 N	185° 06.7	16° 38.0 N	127° 14.1	6° 32.2 S	65° 00.6	21° 56.6 S	Acamar	315° 16.2	40° 13.9 S	178° 58.3	13° 25.4 N	245° 49.2	5.8	18° 20.1 N	4.0	59.7	N 70°	-	01:15	03:12	21:39	22:46	24:34
	01	340° 36.3	229° 58.5	21.3	200° 07.6	37.5	142° 16.2	32.3	80° 03.1	56.6	Achernar	335° 24.5	57° 08.7 S	193° 58.4	24.6	260° 14.0	5.8	24.1	3.8	68°	-	02:06	03:32	22:33	23:39	25:10	
	02	355° 38.7	244° 57.8	21.0	215° 08.5	37.0	157° 18.2	32.5	95° 05.6	56.6	Acruz	173° 06.6	63° 11.9 S	208° 58.5	23.8	274° 38.8	5.7	27.9	3.7	66°	-	02:37	03:48	23:07	-	00:11	
	03	10° 41.2	259° 57.2	20.7	230° 09.4	36.5	172° 20.3	32.6	110° 08.1	56.6	Adhara	255° 10.6	28° 59.7 S	223° 58.7	23.0	289° 03.5	5.7	31.6	3.5	64°	01:06	03:00	04:01	23:31	-	00:35	
	04	25° 43.6	274° 56.5	20.4	245° 10.3	36.0	187° 22.4	32.8	125° 10.6	56.6	Aldebaran	290° 46.2	16° 32.5 N	238° 58.8	22.2	303° 28.2	5.6	35.1	3.5	62°	01:52	03:17	04:12	23:50	-	00:54	
	05	40° 46.1	289° 55.8	20.1	260° 11.1	35.5	202° 24.5	33.0	140° 13.1	56.7				253° 58.9	21.4	317° 52.8	5.6	38.6	3.3	60°	02:20	03:32	04:22	-	00:06	01:09	
	06	55° 48.6	304° 55.1	19.9	275° 12.0	35.1	217° 26.6	33.1	155° 15.6	56.7	Alioth	166° 18.7	55° 52.2 N	268° 59.1	20.6	332° 17.4	5.6	41.9	3.2	59.8	N 58°	02:41	03:44	04:30	-	00:19	01:22
	07	70° 51.0	319° 54.4	19.6	290° 12.9	34.6	232° 28.7	33.3	170° 18.1	56.7	Alkaid	152° 57.0	49° 13.9 N	283° 59.2	19.8	346° 42.0	5.5	45.1	3.1	56°	02:58	03:54	04:37	-	00:31	01:34	
	08	85° 53.5	334° 53.7	19.3	305° 13.8	34.1	247° 30.8	33.4	185° 20.6	56.7	Alnair	27° 39.8															

2017 August 20, 21, 22 (Sun, Mon, Tue)

	GMT	ARIES	VENUS	-4.0	MARS	+1.8	JUPITER	-1.8	SATURN	+0.4	STARS			SUN		MOON					Lat	Twilight		Sunrise	20	Moonrise		21	22
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil						
Sunday	00																												
	01																												
	02																												
	03																												
	04																												
	05																												
	06																												
	07																												
	08																												
	09																												
Monday	00																												
	01																												
	02																												
	03																												
	04																												
	05																												
	06																												
	07																												
	08																												
	09																												
Tuesday	00																												
	01																												

2017 August 23, 24, 25 (Wed, Thur, Fri)

	GMT	ARIES	VENUS	-4.0	MARS	+1.8	JUPITER	-1.8	SATURN	+0.4	STARS			SUN			MOON			Lat	Twilight		Sunrise	Moonrise			
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		23	24	25
Wednesday	00	331° 28'6	213° 20'6	20° 31'1 N	187° 14'5	15° 26'2 N	132° 13'0	6° 55'8 S	70° 59'0	21° 57'5 S	Acamar	315° 16'1	40° 13'9 S	179° 19'6	11° 26'8 N	163° 40'7	10'7	7° 21'5 N	10'6	58'1	N 70°	-	01:17	03:20	06:00	07:50	09:35
	01	346° 31'1	228° 19'9	30'6	202° 15'4	25'6	147° 15'1	56'0	86° 01'5	57'5	Achernar	335° 24'4	57° 08'7 S	194° 19'7	25'9	178° 10'4	10'7	10'9	10'6	68°	-	02:10	03:41	06:09	07:52	09:31	
	02	1° 33'6	243° 19'2	30'2	217° 16'3	25'1	162° 17'1	56'1	101° 03'9	57'5	Acruz	173° 06'6	63° 11'8 S	209° 19'9	25'1	192° 40'1	10'7	00'3	10'7	66°	01:07	03:04	04:09	06:23	07:55	09:24	
	03	16° 36'0	258° 18'5	29'8	232° 17'2	24'6	177° 19'2	56'3	116° 06'4	57'6	Adhara	255° 10'6	28° 59'7 S	224° 20'0	24'2	207° 09'8	10'8	6° 49'6 N	10'6	58'0	64°	01:54	03:22	04:20	06:28	07:56	09:22
	04	31° 38'5	273° 17'9	29'4	247° 18'1	24'1	192° 21'3	56'5	131° 08'9	57'6	Aldebaran	290° 46'2	16° 32'5 N	239° 20'2	23'4	221° 39'6	10'9	39'0	10'7	62°	02:22	03:37	04:28	06:33	07:57	09:19	
	05	46° 40'9	288° 17'2	28'9	262° 19'0	23'6	207° 23'3	56'7	146° 11'4	57'6				254° 20'4	22'6	236° 09'5	11'0	28'3	10'8	60°	02:44	03:49	04:36	06:36	07:58	09:17	
	06	61° 43'4	303° 16'5	28'5	277° 19'9	23'1	222° 25'4	56'8	161° 13'8	57'6	Alioth	166° 18'7	55° 52'2 N	269° 20'5	21'7	250° 39'5	10'9	17'5	10'7	57'9	N 58°	03:01	03:59	04:43	06:40	07:59	09:16
	07	76° 45'9	318° 15'8	28'1	292° 20'8	22'6	237° 27'5	57'0	176° 16'3	57'6	Alkaid	152° 57'0	49° 13'9 N	284° 20'7	20'9	265° 09'4	11'1	06'8	10'7	56°	03:15	04:08	04:49	06:43	08:00	09:14	
	08	91° 48'3	333° 15'2	27'6	307° 21'7	22'1	252° 29'5	57'2	191° 18'8	57'6	Alnair	27° 39'8	46° 52'4 S	299° 20'9	20'0	279° 39'5	11'1										

2017 August 26, 27, 28 (Sat, Sun, Mon)

		ARIES		VENUS		-4.0		MARS		+1.8		JUPITER		-1.8		SATURN		+0.4		STARS				SUN				MOON				Lat	Twilight		Sunrise		26			Moonrise												
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical		Civil				26		Moonrise		
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		Nautical										

2017 August 29, 30, 31 (Tue, Wed, Thur)

		ARIES			VENUS			-4.0			MARS			+1.8			JUPITER			-1.7			SATURN			+0.4			STARS			SUN				MOON				Lat	Twilight		Sunrise		29			Moonrise		31																																																																																																																																																																																												
		GHA			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			GHA			Dec			GHA			v			Dec			d			HP			Nautical		Civil																																																																																																																																																																																										
		337° 23.5			211° 45.0			19° 19.7 N			189° 25.3			14° 10.9 N			137° 08.9			7° 20.4 S			76° 53.6			21° 58.7 S			Acamar			315° 16.1			40° 13.9 S			179° 44.8			9° 21.7 N			96° 18.2			13.2			15° 27.2 S			6.1			54.4			N 72°		-		02:17		03:52		16:51		-		-																																																																																																																																																																							
		352° 25.9			226° 44.4			19.2			204° 26.2			10.3			152° 10.9			20.6			91° 56.0			58.7			Achernar			335° 24.3			57° 08.7 S			194° 45.0			20.8			110° 50.4			13.2			33.3			6.0			68°			01:11		03:12		04:19		15:20		16:38		17:43																																																																																																																																																																									
		7° 28.4			241° 43.7			18.6			219° 27.2			09.8			167° 13.0			20.8			106° 58.5			58.7			Acruz			173° 06.6			63° 11.8 S			209° 45.2			19.9			125° 22.6			13.2			39.3			6.0			66°			01:58		03:29		04:29		14:55		16:07		17:08																																																																																																																																																																									
		22° 30.8			256° 43.1			18.0			234° 28.1			09.3			182° 15.0			20.9			122° 00.9			58.7			Adhara			255° 10.5			28° 59.7 S			224° 45.4			19.0			139° 54.8			13.1			45.3			5.9			64°			02:27		03:43		04:37		14:36		15:44		16:43																																																																																																																																																																									
		37° 33.3			271° 42.5			17.5			249° 29.0			08.7			197° 17.1			21.1			137° 03.4			58.7			Aldebaran			290° 46.1			16° 32.5 N			239° 45.5			18.1			154° 26.9			13.2			51.2			5.8			62°			02:48		03:55		04:44		14:21		15:26		16:23																																																																																																																																																																									
		52° 35.8			286° 41.8			16.9			264° 29.9			08.2			212° 19.1			21.3			152° 05.8			58.7																																																																																																																																																																																																																				

2017 September 1, 2, 3 (Fri, Sat, Sun)

GMT		ARIES			VENUS			-4.0			MARS			+1.8			JUPITER			-1.7			SATURN			+0.5			STARS				SUN				MOON				Lat	Twilight		Sunrise		Moonrise								
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°	Nautical	Civil	1		Moonrise	
		340° 20'9		210° 59'0		18° 36'6 N		190° 31'8		13° 32'0 N		139° 35'8		7° 33'0 S		79° 49'4		21° 59'3 S		94° 49'4		57° 53'9 S		94° 49'4		57° 53'9 S		Acamar		315° 16'0		40° 13'9 S		179° 58'7		8° 17'1 N		62° 06'1		11'8		19° 23'4 S		0'1		54'4		N 70°	00:21	03:06	04:20	19:24	19:35	19:36
		355° 23'3		225° 58'4		36'0		205° 32'7		31'5		205° 32'7		31'5		154° 37'8		59'3		154° 37'8		59'3		154° 37'8		59'3		Achernar		335° 24'3		57° 08'7 S		194° 58'9		16'2		76° 36'9		11'7		23'5		0'1		68°		01:41	03:25	04:30	18:28	18:54	19:08	
		10° 25'8		240° 57'8		35'3		220° 33'6		31'0		169° 39'9		33'4		109° 54'3		59'3		109° 54'3		59'3		109° 54'3		59'3		Acrux		173° 06'6		63° 11'8 S		209° 59'1		15'3		91° 07'6		11'8		23'6		0'1		66°		02:16	03:41	04:39	17:54	18:26	18:47	
		25° 28'3		255° 57'1		34'7		235° 34'6		30'4		184° 41'9		33'6		124° 56'8		59'4		124° 56'8		59'4		124° 56'8		59'4		Adhara		255° 10'5		28° 59'7 S		14° 4		105° 38'4		11'8		23'5		0'1		54'5		64°	02:41	03:53	04:46	17:29	18:04	18:30		
		40° 30'7		270° 56'5		34'1		250° 35'5		29'9		199° 44'0		33'7		139° 59'2		59'4		139° 59'2		59'4		139° 59'2		59'4		Aldebaran		290° 46'1		16° 32'5 N		239° 59'5		13'5		120° 09'2		11'7		23'4		0'2		62°		03:00	04:04	04:52	17:10	17:47	18:16	
		55° 33'2		285° 55'9		33'4		265° 36'4		29'3		214° 46'0		33'9		155° 01'6		59'4		155° 01'6		59'4		155° 01'6		59'4								254° 59'7		12'6		134° 39'9		11'7														

2017 September 4, 5, 6 (Mon, Tue, Wed)

	GMT	ARIES	VENUS			-4.0	MARS			+1.8	JUPITER			-1.7	SATURN			+0.5	STARS			SUN			MOON					Lat	Twilight		Sunrise	Moonrise					
			GHA	GHA	Dec		GHA	Dec	GHA		Dec	GHA	Dec		Name	SHA	Dec		GHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	Nautical	Civil		4	5		6					
Monday	00		343° 18.3	210° 14.4	17° 48.7 N		191° 38.9	12° 52.5 N			142° 02.1	7° 45.8 S			82° 44.4	22° 00.0 S				Acamar	315° 16.0	40° 13.9 S			180° 13.3	7° 11.3 N		26° 42.6	11.5	15° 38.7 S	6.3	55.7	N 72°	-	02:59	04:21	20:01	19:50	19:40
	01		358° 20.7	225° 13.8	48.0		206° 39.9	51.9			157° 04.1	46.0			97° 46.8	00.0				Achernar	335° 24.3	57° 08.7 S			195° 13.5	10.4		41° 13.1	11.5	32.4	6.5	68°	01:19	03:21	04:32	19:36	19:34	19:32	
	02		13° 23.2	240° 13.2	47.3		221° 40.8	51.4			172° 06.1	46.2			112° 49.2	00.1				Acruz	173° 06.7	63° 11.8 S			210° 13.7	09.4		55° 43.6	11.4	25.9	6.5	55.8	66°	02:33	03:52	04:49	19:01	19:12	19:20
	03		28° 25.7	255° 12.6	46.6		236° 41.7	50.8			187° 08.2	46.4			127° 51.7	00.1				Adhara	255° 10.5	28° 59.7 S			225° 13.9	08.5		70° 14.0	11.5	19.4	6.6	64°	02:54	04:03	04:55	18:49	19:03	19:15	
	04		43° 28.1	270° 12.0	45.9		251° 42.7	50.3			202° 10.2	46.6			142° 54.1	00.1				Aldebaran	290° 46.1	16° 32.5 N			240° 14.1	07.6		84° 44.5	11.5	12.8	6.8	62°	03:11	04:13	05:00	18:38	18:56	19:11	
	05		58° 30.6	285° 11.4	45.2		266° 43.6	49.7			217° 12.2	46.7			157° 56.5	00.1									255° 14.3	06.7		99° 15.0	11.5	06.0	6.7	60°	03:24	04:21	05:05	18:29	18:49	19:07	
	06		73° 33.1	300° 10.8	44.5		281° 44.6	49.2			232° 14.2	46.9			172° 58.9	00.1				Alioth	166° 18.7	55° 52.1 N			270° 14.5	05.8		113° 45.5	11.5	14° 59.3 S	6.9		N 58°	03:36	04:27	05:09	18:20	18:43	19:04
	07		88° 35.5	315° 10.2	43.8		296° 45.5	48.6			247° 16.3	47.1			188° 01.3	00.1				Alkaid																			

2017 September 7, 8, 9 (Thur, Fri, Sat)

	GMT	ARIES	VENUS		-4.0	MARS		+1.8	JUPITER		-1.7	SATURN		+0.5	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
			GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec		Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP		Nautical	Civil		7	8	9
Thursday	00	346° 15.7	209° 31'.3	16° 56'.2 N		192° 46.7	12° 12.2 N		144° 27.7	7° 58'.8 S		85° 38.4	22° 00'.8 S		Acamar	315° 16'.0	40° 13'.9 S	180° 28'.5	6° 04'.4 N	351° 25'.9	11'.6	5° 01'.1 S	10'.8	57.4	N 72°	00:40	03:17	04:36	19:32	19:24	19:15
	01	1° 18'.2	224° 30'.7	55.4		207° 47.7	11.7		159° 29.7	59.0		100° 40.8	00.8		Achernar	335° 24'.3	57° 08'.7 S	195° 28'.7	03.5	5° 56'.5	11'.6	4° 50'.3 S	10.9	57.5	N 70°	01:49	03:36	04:45	19:30	19:28	19:26
	02	16° 20'.6	239° 30'.1	54.7		222° 48.6	11.1		174° 31.8	59.2		115° 43.2	00.8		Acruis	173° 06'.7	63° 11'.8 S	210° 28'.9	02.6	20° 27.1	11.6	39.4	10.8		66°	02:48	04:03	04:58	19:27	19:34	19:42
	03	31° 23.1	254° 29.5	53.9		237° 49.5	10.5		189° 33.8	59.4		130° 45.6	00.8		Adhara	255° 10'.5	28° 59.7 S	225° 29.1	01.6	34° 57.7	11.5	28.6	10.9		64°	03:07	04:13	05:03	19:25	19:36	19:48
	04	46° 25.6	269° 28.9	53.1		252° 50.5	10.0		204° 35.8	59.5		145° 48.0	00.8		Aldebaran	290° 46.1	16° 32.5 N	240° 29.3	00.7	49° 28.2	11.6	17.7	11.0		62°	03:21	04:21	05:08	19:24	19:38	19:53
	05	61° 28.0	284° 28.3	52.4		267° 51.4	09.4		219° 37.8	59.7		160° 50.4	00.9					255° 29.5	5° 59.8 N	63° 58.8	11.6	06.7	10.9	57.6	60°	03:33	04:28	05:12	19:23	19:40	19:58
	06	76° 30'.5	299° 27.8	51.6		282° 52.4	08.9		234° 39.8	59.9		175° 52.8	00.9		Alioth	166° 18'.7	55° 52.1 N	270° 29.8	58.8	78° 29.4	11.5	3° 55.8 S	11.0		N 58°	03:44	04:34	05:15	19:23	19:42	20:02
	07	91° 32.9	314° 27.2	50.8		297° 53.3	08.3		249° 41.8	8° 00'.1 S		190° 55.2	00.9		Alkaid	152° 57.1	49° 13.9 N	285° 30.0	57.9	92° 59.9	11.6	44.8	11.0		56°	03:52	04:40	05:18	19:22	19:43	20:06
	08																														

		ARIES		VENUS		-3.9		MARS		+1.8		JUPITER		-1.7		SATURN		+0.5		STARS				SUN				MOON				Lat	Twilight		Sunrise		10			Moonrise			11			12		
GMT		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°	01:29	03:34	04:49	19:05	18:52	18:26		
10	00	349° 13' 1	208° 49' 7	15° 59' 3	N	193° 55' 1	11° 31' 4	N	146° 52' 8	8° 11' 9	S	183° 31' 5	22° 01' 6	S	Acamar	315° 16' 0	40° 13' 9	S	180° 44' 1	4° 56' 7	N	315° 21' 8	9' 8	8° 21' 1	N	10' 5	58' 7	N 70°	02:13	03:51	04:57	19:24	19:24	19:27														
	01	4° 15' 6	223° 49' 2	58' 5		208° 56' 0	30' 8		161° 54' 8	12' 1		103° 33' 8	01' 6		Achernar	335° 24' 2	57° 08' 7	S	195° 44' 3	55' 8		329° 50' 6	9' 8	31' 6	10' 5	58' 8	68°	02:41	04:03	05:03	19:39	19:47	20:02															
	02	19° 18' 0	238° 48' 6	57' 7		223° 57' 0	30' 2		176° 56' 8	12' 3		118° 36' 2	01' 6		Acruz	173° 06' 7	63° 11' 8	S	210° 44' 5	54' 8		344° 19' 4	9' 7	42' 1	10' 4	66°	03:02	04:14	05:08	19:51	20:05	20:27																
	03	34° 20' 5	253° 48' 0	56' 9		238° 58' 0	29' 6		191° 58' 8	12' 5		133° 38' 6	01' 7		Adhara	255° 10' 4	28° 59' 7	S	225° 44' 7	53' 9		358° 48' 1	9' 7	52' 5	10' 4	64°	03:18	04:22	05:12	20:02	20:20	20:47																
	04	49° 23' 0	268° 47' 5	56' 1		253° 58' 9	29' 1		207° 00' 8	12' 7		148° 41' 0	01' 7		Aldebaran	290° 46' 0	16° 32' 5	N	240° 44' 9	52' 9		13° 16' 8	9' 6	9° 02' 9	N	10' 4	62°	03:31	04:30	05:16	20:11	20:33	21:03															
	05	64° 25' 4	283° 46' 9	55' 2		268° 59' 9	28' 5		222° 02' 8	12' 8		163° 43' 4	01' 7						255° 45' 2	52' 0		27° 45' 4	9' 6	13' 3	10' 3	60°	03:42	04:36	05:19	20:18	20:44	21:17																
	06	79° 27' 9	298° 46' 3	54' 4		284° 00' 8	27' 9		237° 04' 8	13' 0		178° 45' 8	01' 7		Alioth	166° 18' 8	55° 52' 1	N	270° 45' 4	51' 0		42° 14' 0	9' 6	23' 6	10' 3	N 58°	03:51	04:41	05:21	20:25	20:53	21:28																
	07	94° 30' 4	313° 45' 8	53' 6		299° 01' 8	27' 3		252° 06' 8	13' 2		193° 48' 2	01' 7		Alkaid	152° 57' 1	49° 13' 9	N	285° 45' 6	50' 1		56° 42' 6	9' 5	33' 9	10' 2	56°	03:59	04:46	05:26	20:31	21:01	21:38																
	08	109° 32' 8	328° 45' 2	52' 8		314° 02' 7	26' 8		271° 39' 8	13' 4		208° 50' 6	01' 7		Alnair	27° 39' 8	46° 52' 5	S	300° 45' 8	49' 1		71° 11' 1	9' 5	44' 1	10' 1	54°	04:06	04:50	05:24	20:36	21:08	21:47																
	09	124° 35' 3	343° 44' 6	51' 9		329° 03' 7	26' 2		282° 10' 9	13' 6		232° 53' 0	01' 7		Alnilam	275° 43' 5	1° 11' 5	S	315° 46' 0	48' 2		85° 39' 6	9' 4	54' 2	10' 1	52°	04:12	04:54	05:28	20:41	21:15	21:55																
	10	139° 37' 7	358° 44' 1	51' 1		344° 04' 6	25' 6		297° 12' 9	13' 8		238° 55' 4	01' 7		Alphard	217° 53' 6	8° 44' 0	S	330° 46' 3	47' 2		100° 08' 0	9' 4	10° 04' 3	N	10' 0	58' 9	50°	04:18	04:57	05:30	20:46	21:21	22:03														
11																																																

2017 September 13, 14, 15 (Wed, Thur, Fri)

GMT		ARIES		VENUS		-3.9		MARS		+1.8		JUPITER		-1.7		SATURN		+0.5		STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise													
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name			SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°	02:00	03:50	05:03	-	-	-
Wednesday day	13	00	352° 10'.5	208° 09'.8	14° 58'.4 N	195° 04'.0	10° 49'.9 N	149° 17'.3	8° 25'.2 S	91° 23'.6	22° 02'.5 S	106° 26'.0	02'.5	108° 26'.0	02'.5	108° 26'.0	02'.5	108° 26'.0	02'.5	Acamar	315° 16'.0	40° 13'.9 S	180° 59'.9	3° 48'.2 N	275° 57'.1	6'.5	17° 59'.3 N	4'.5	59'.3	N 70°	02:34	04:04	05:09	19:39	20:26	22:02											
	01	01	7° 13'.0	223° 09'.2	57'.5	210° 05'.0	49'.3	164° 19'.3	25'.4	106° 26'.0	02'.5	106° 26'.0	02'.5	106° 26'.0	02'.5	106° 26'.0	02'.5	106° 26'.0	02'.5	Achernar	335° 24'.2	57° 08'.7 S	196° 00'.2	47'.2	290° 22'.6	6'.5	18° 03'.8 N	4'.5	68°	02:57	04:15	05:13	20:30	21:24	22:45												
	02	02	22° 15'.5	238° 08'.7	56'.6	225° 05'.9	48'.7	179° 21'.3	25'.5	121° 28'.4	02'.5	121° 28'.4	02'.5	121° 28'.4	02'.5	121° 28'.4	02'.5	121° 28'.4	02'.5	Acruz	173° 06'.7	63° 11'.8 S	211° 00'.4	46'.3	304° 48'.1	6'.5	08'.3	4'.3	66°	03:15	04:24	05:17	21:02	21:57	23:14												
	03	03	37° 17'.9	253° 08'.1	55'.8	240° 06'.9	48'.1	194° 23'.3	25'.7	136° 30'.8	02'.5	136° 30'.8	02'.5	136° 30'.8	02'.5	136° 30'.8	02'.5	136° 30'.8	02'.5	Adhara	255° 10'.4	28° 59'.7 S	226° 00'.6	45'.3	319° 13'.6	6'.4	12'.6	4'.2	64°	03:29	04:31	05:20	21:26	22:22	23:35												
	04	04	52° 20'.4	268° 07'.6	54'.9	255° 07'.9	47'.5	209° 25'.3	25'.9	151° 33'.1	02'.5	151° 33'.1	02'.5	151° 33'.1	02'.5	151° 33'.1	02'.5	151° 33'.1	02'.5	Aldebaran	290° 46'.0	16° 32'.5 N	241° 00'.8	44'.4	333° 39'.0	6'.4	16'.8	4'.1	62°	03:41	04:38	05:23	21:45	22:42	23:53												
	05	05	67° 22'.8	283° 07'.1	54'.0	270° 08'.8	47'.0	224° 27'.3	26'.1	166° 35'.5	02'.5	166° 35'.5	02'.5	166° 35'.5	02'.5	166° 35'.5	02'.5	166° 35'.5	02'.5		256° 01'.0	43'.4	348° 04'.4	6'.4	20'.9	3'.9	60°	03:51	04:43	05:26	22:00	22:57	24:07														
	06	06																																													

2017 September 16, 17, 18 (Sat, Sun, Mon)

GMT		ARIES		VENUS		-3.9		MARS		+1.8		JUPITER		-1.7		SATURN		+0.5		STARS			SUN		MOON					Lat	Twilight		Sunrise		Moonrise																			
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name			SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP		N 72°		02:25		04:06		05:17		23:13		-		01:23	
S a t u r d a y	00	355° 07'9		207° 31'4		13° 53'6 N		196° 13'5		10° 07'8 N		151° 41'2		8° 38'6 S		94° 14'8		22° 03'4 S		Acamar			315° 15'9		40° 13'9 S		181° 15'9		2° 39'0 N		234° 07'7		6'7		18° 08'9 N		4'4		59'1		N 70°		02:52		04:17		05:21		23:54		-		01:46	
	01	10° 10'4		222° 30'9		52'6		211° 14'4		07'2		211° 14'4		07'2		109° 17'2		03'4		Achernar			335° 24'2		57° 08'7 S		196° 16'2		38'1		248° 33'4		6'7		04'5		4'5		59'0		68°		03:12		04:27		05:24		-		00:22		02:04	
	02	25° 12'9		237° 30'4		51'7		226° 15'4		06'6		181° 45'2		38'9		124° 19'6		03'4		Acruz			173° 06'7		63° 11'7 S		211° 16'4		37'1		262° 59'1		6'8		18° 00'0 N		4'7		66°		03:28		04:34		05:27		-		00:43		02:18			
	03	40° 15'3		252° 29'9		50'8		241° 16'4		06'0		196° 47'2		39'1		139° 21'9		03'4		Adhara			255° 10'4		28° 59'7 S		226° 16'6		36'2		277° 24'9		6'8		55'3		4'7		64°		03:40		04:41		05:29		-		01:00		02:30			
	04	55° 17'8		267° 29'4		49'9		256° 17'4		05'4		211° 49'2		39'3		154° 24'3		03'4		Aldebaran			290° 46'0		16° 32'5 N		241° 16'8		35'2		291° 50'7		6'9		50'6		4'9		62°		03:50		04:46		05:31		-		01:14		02:40			
	05	70° 20'3		282° 28'8		48'9		271° 18'3		04'9		226° 51'2		39'5		169° 26'7		03'5									256° 17'0		34'2		306° 16'6		6'8		45'7		4'9		60°		03:59		04:51		05:33		00:07		01:25		02:48			
	06	85° 22'7		297° 28'3		48'0</																																																

2017 September 19, 20, 21 (Tue, Wed, Thur)

	GMT	ARIES	VENUS	-3.9	MARS	+1.8	JUPITER	-1.7	SATURN	+0.5	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise			
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	02:46	04:21	05:30	03:21	05:13	07:01	
Tuesday	00	358° 05.4	206° 54.7	12° 45.1 N	197° 23.4	9° 25.2 N	154° 04.7	8° 52.0 S	97° 05.1	22° 04.3 S	Acamar	315° 15.9	40° 13.9 S	181° 31.9	1° 29.4 N	195° 07.8	10.5	8° 52.7 N	10.2	58.0	N 70°	03:09	04:30	05:33	03:34	05:18	06:59	
	01	13° 07.8	221° 54.2	44.2	212° 24.4	24.6	169° 06.6	52.2	112° 07.5	04.4	Achernar	335° 24.2	57° 08.8 S	196° 32.2	28.5	209° 37.3	10.6	42.5	10.2	57.9	68°	03:26	04:38	05:34	03:45	05:23	06:58	
	02	28° 10.3	236° 53.7	43.2	227° 25.4	24.0	184° 08.6	52.4	127° 09.9	04.4	Acruz	173° 06.7	63° 11.7 S	211° 32.4	27.5	224° 06.9	10.6	32.3	10.3		66°	03:39	04:44	05:36	03:53	05:26	06:57	
	03	43° 12.7	251° 53.2	42.2	242° 26.4	23.4	199° 10.6	52.6	142° 12.2	04.4	Adhara	255° 10.4	28° 59.7 S	226° 32.6	26.5	238° 36.5	10.7	22.0	10.4		64°	03:50	04:50	05:38	04:00	05:29	06:56	
	04	58° 15.2	266° 52.7	41.2	257° 27.3	22.8	214° 12.6	52.8	157° 14.6	04.4	Aldebaran	290° 46.0	16° 32.5 N	241° 32.8	25.6	253° 06.2	10.8	11.6	10.3		62°	04:00	04:54	05:39	04:06	05:32	06:55	
	05	73° 17.7	281° 52.2	40.3	272° 28.3	22.2	229° 14.6	53.0	172° 16.9	04.4						256° 33.0	24.6	267° 36.0	10.8	10.3	10.4	60°	04:07	04:58	05:40	04:12	05:34	06:54
	06	88° 20.1	296° 51.7	39.3	287° 29.3	21.7	244° 16.6	53.2	187° 19.3	04.4	Alioth	166° 18.8	55° 52.1 N	271° 33.3	23.6	282° 05.8	10.8	7° 50.9 N	10.5	57.8	N 58°	04:14	05:01	05:41	04:16	05:36	06:54	
	07	103° 22.6	311° 51.2	38.3	302° 30.3	21.1	259° 18.6	53.3	202° 21.7	04.4	Alkaid	152° 57.1	49° 13.8 N	286° 33.5	22.6	296° 35.6	10.9	40.4	10.4		56°	04:20	05:04	05:41	04:20	05:38	06:53	
	08	118° 25.1	326° 50.7	37.3	317° 31.2	20.5	274° 20.6	53.5	217° 24.0	04.4	Alnair																	

2017 September 22, 23, 24 (Fri, Sat, Sun)

GMT	ARIES			VENUS			MARS			JUPITER			SATURN			STARS			SUN			MOON				Lat	Twilight		Sunrise	Moonrise			
	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil	22		23	24					
Friday	00	1° 02'8	206° 19'6	11° 33'4 N	198° 33'8	8° 42'2 N	156° 27'6	9° 05'6 S	99° 54'6	22° 05'3 S	Acamar	315° 15'9	40° 13'9 S	181° 47'8	0° 19'5 N	160° 21'9	13'1	4° 01'8 S	10'4	56'2	N 70°	03:24	04:43	05:44	08:46	10:31	11:51						
	01	16° 05'8	221° 19'1	32'4	213° 34'8	41° 16'2	171° 29'6	05'8	114° 56'9	05'3	Achernar	335° 24'1	57° 08'8 S	196° 48'1	18'5	174° 54'0	13'1	12'2	10'5	68°	03:39	04:49	05:45	08:37	10:02	11:32							
	02	31° 07'7	236° 18'6	31'4	228° 35'8	41'0	186° 31'6	06'0	129° 59'3	05'4	Acruz	173° 06'7	63° 11'7 S	211° 48'3	17'6	189° 26'1	13'1	22'7	10'4	66°	03:51	04:54	05:46	08:25	09:51	11:16							
	03	46° 10'2	251° 18'1	30'4	243° 36'8	40'4	201° 33'6	06'2	145° 01'6	05'4	Adhara	255° 10'4	28° 59'7 S	226° 48'5	16'6	203° 58'2	13'2	33'1	10'3	56'1	64°	04:00	04:58	05:46	08:20	09:43	11:03						
	04	61° 12'6	266° 17'7	29'4	258° 37'8	39'8	216° 35'6	06'4	160° 04'0	05'4	Aldebaran	290° 46'0	16° 32'5 N	241° 48'7	15'6	218° 30'4	13'2	43'4	10'4	62°	04:08	05:02	05:46	08:16	09:35	10:52							
	05	76° 15'1	281° 17'2	28'3	273° 38'8	39'2	231° 37'5	06'5	175° 06'3	05'4				256° 48'9	14'6	233° 02'6	13'1	53'8	10'3	60°	04:15	05:05	05:47	08:13	09:29	10:43							
	06	91° 17'5	296° 16'7	27'3	288° 39'7	38'6	246° 39'5	06'7	190° 08'7	05'4	Alioth	166° 18'8	55° 52'1 N	271° 49'2	13'7	247° 34'7	13'2	5° 04'1 S	10'3	N 58°	04:21	05:08	05:47	08:10	09:23	10:35							
	07	106° 20'0	311° 16'2	26'3	303° 40'7	38'0	261° 41'5	06'9	205° 11'0	05'4	Alkaid	152° 57'1	49° 13'8 N	286° 49'4	12'7	262° 06'9	13'2	14'4	10'2	56'0	56°	04:26	05:10	05:47	08:07	09:18	10:28						
	08	121° 22'5	326° 15'8	25'3	318° 41'7	37'4	276° 43'5	07'1	220° 13'3	05'4	Alnair	27° 39'8	46° 52'5 S	301° 49'6	11'7	276° 39'1	13'2	24'6	10'2	54°	04:30	05:12	05:48	08:04	09:14	10:21							
	09	136° 24'9	341° 15'3	24'3	333° 42'7	36'8	291° 45'5	07'3	235° 15'7	05'5	Alnilam	275° 43'4	1° 11'5 S	316° 49'8	10'7	291° 11'3	13'3	34'8	10'2	52°	04:34	05:14	05:48	08:02	09:10	10:16							
	10	151° 27'4	356° 14'8	23'2	348° 43'7	36'2	306° 47'4	07'5	250° 18'0	05'5	Alphard	217° 53'5	8° 44'0 S	331° 50'0	09'8	305° 43'6	13'2	45'0	10'1	50°	04:38	05:16	05:48	08:00	09:06	10:11							
	11	166° 29'9	11° 14'3	22'2	3° 44'6	35'6	321° 49'4	07'7	265° 20'4	05'5				346° 50'2	08'8	320° 15'8	13'3	55'1	10'1	55'9	45°	04:45	05:19	05:48	07:56	08:58	10:00						
	12	181° 32'3	26° 13'9	11° 21'2 N	18° 45'6	8° 35'0 N	336° 51'4	9° 07'9 S	280° 22'7	22° 05'5 S	Alphecca	126° 08'8	26° 39'7 N	1° 50'5	0° 07'8 N	334° 48'1	13'2	6° 05'2 S	10'1	55'9	N 40°	04:50	05:22	05:49	07:52	08:52	09:50						
	13	196° 34'8	41° 13'4	20																													

2017 September 25, 26, 27 (Mon, Tue, Wed)

	GMT	ARIES	VENUS	-3.9	MARS	+1.8	JUPITER	-1.7	SATURN	+0.5	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		25	26	27
Monday	25 00	4° 00'2	205° 45'9	10° 18'7 N	199° 44'7	7° 58'7 N	158° 50'2	9° 19'2 S	102° 43'1	22° 06'4 S	Acamar	315° 15'9	40° 14'0 S	182° 03'5	0° 50'6 S	127° 05'4	13'1	14° 40'7 S	6'7	54'7	N 70°	03:39	04:55	05:56	13:28	15:04	16:34
	01	19° 02'6	220° 45'4	17'7	214° 45'7	58'1	173° 52'1	19'4	117° 45'5	06'4	Achernar	335° 24'2	57° 08'8 S	197° 03'7	51'6	141° 37'5	13'1	47'4	6'7	54'6	68°	03:52	05:00	05:56	12:59	14:21	15:33
	02	34° 05'1	235° 45'0	16'6	229° 46'7	57'5	188° 54'1	19'6	132° 47'8	06'4	Acruz	173° 06'7	63° 11'7 S	212° 03'9	52'5	156° 09'6	13'1	54'1	6'6	66°	04:02	05:04	05:55	12:37	13:53	14:59	
	03	49° 07'6	250° 44'5	15'5	244° 47'7	56'9	203° 56'1	19'8	147° 50'1	06'4	Adhara	255° 10'3	28° 59'7 S	227° 04'2	53'5	170° 41'7	13'0	15° 00'7 S	6'3	64°	04:10	05:07	05:55	12:20	13:31	14:34	
	04	64° 10'0	265° 44'1	14'5	259° 48'7	56'3	218° 58'1	20'0	162° 52'5	06'4	Aldebaran	290° 45'9	16° 32'5 N	242° 04'4	54'5	185° 13'7	13'1	07'2	6'5	62°	04:17	05:10	05:54	12:05	13:13	14:14	
	05	79° 12'5	280° 43'6	13'4	274° 49'6	55'7	234° 00'0	20'2	177° 54'8	06'4				257° 04'6	55'5	199° 45'8	13'0	13'7	6'4	60°	04:23	05:12	05:54	11:53	12:59	13:58	
	06	94° 15'0	295° 43'2	12'4	289° 50'6	55'1	249° 02'0	20'4	192° 57'1	06'4	Alioth	166° 18'8	55° 52'0 N	272° 04'8	56'4	214° 17'8	13'0	20'1	6'3	N 58°	04:28	05:14	05:54	11:43	12:47	13:45	
	07	109° 17'4	310° 42'7	11'3	304° 51'6	54'5	264° 04'0	20'6	207° 59'5	06'5	Alkaid	152° 57'1	49° 13'8 N	287° 05'0	57'4	228° 49'8	13'0	26'4	6'3	56°	04:32	05:16	05:53	11:34	12:36	13:33	
	08	124° 19'9	325° 42'2	10'2	319° 52'6	53'9	279° 06'0	20'8	223° 01'8	06'5	Alnair	237° 39'8	46° 52'5 S	302° 05'2	5												

2017 September 28, 29, 30 (Thur, Fri, Sat)

GMT	ARIES	VENUS		MARS	JUPITER		SATURN		STARS				SUN		MOON				Lat	Twilight		Sunrise	Moonrise				
		GHA	Dec		GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP		Nautical	Civil		28	29	30		
Thurs day	00	6° 57'6	205° 13'6	9° 01'3 N	200° 56'0	7° 14'8 N	161° 12'3	9° 32'9 S	105° 30'8	22° 07'4 S	Acamar	315° 15'9	40° 14'0 S	182° 18'9	2° 00'7 S	92° 59'4	12'0	19° 26'3 S	0'8	54'3	N 72°	03:39	05:03	06:10	-	-	18:46
	01	22° 00'1	220° 13'2	00'2	215° 57'0	14'2	176° 14'2	33'1	120° 33'1	07'4	Achernar	335° 24'1	57° 08'8 S	197° 19'1	01'6	107° 30'4	12'1	27'1	0'8		N 70°	03:53	05:07	06:08	17:32	17:48	17:51
	02	37° 02'5	235° 12'7	8° 59'1 N	230° 58'0	13'6	191° 16'2	33'3	135° 35'4	07'4	Acrux	173° 06'7	63° 11'7 S	212° 19'3	02'6	122° 01'5	12'0	27'9	0'7		68°	04:04	05:11	06:06	16:27	16:59	17:17
	03	52° 05'0	250° 12'3	58'0	245° 59'0	13'0	206° 18'2	33'5	150° 37'8	07'5	Adhara	255° 10'3	28° 59'7 S	227° 19'5	03'6	136° 32'5	12'1	28'6	0'6		66°	04:12	05:14	06:05	15:51	16:28	16:52
	04	67° 07'4	265° 11'8	56'9	261° 00'0	12'4	221° 20'2	33'7	165° 40'1	07'5	Aldebaran	290° 45'9	16° 32'5 N	242° 19'7	04'6	151° 03'6	12'0	29'2	0'5		64°	04:19	05:16	06:03	15:25	16:05	16:33
	05	82° 09'9	280° 11'4	55'8	276° 01'0	11'8	236° 22'1	33'9	180° 42'4	07'5				257° 19'9	05'5	165° 34'6	12'0	29'7	0'4		62°	04:25	05:18	06:02	15:05	15:46	16:17
	06	97° 12'4	295° 11'0	54'7	291° 01'9	11'2	251° 24'1	34'1	195° 44'7	07'5	Alioth	166° 18'8	55° 52'0 N	272° 20'1	06'5	180° 05'6	12'0	30'1	0'4		60°	04:31	05:20	06:01	14:49	15:31	16:04
	07	112° 14'8	310° 10'5	53'6	306° 02'9	10'6	266° 26'1	34'3	210° 47'1	07'5	Alkaid	152° 57'1	49° 13'8 N	287° 20'3	07'5	194° 36'6	12'0	30'5	0'2		N 58°	04:35	05:21	06:00	14:35	15:18	15:53
	08	127° 17'3	325° 10'1	52'5	321° 03'9	10'0	281° 28'0	34'4	225° 49'4	07'5	Alnair	27° 39'8	46° 52'5 S	302° 20'5	08'5	209° 07'6	11'9	30'7	0'1		56°	04:39	05:22	05:59			

2017 October 1, 2, 3 (Sun, Mon, Tue)

GMT		ARIES		VENUS		-3.9		MARS		+1.8		JUPITER		-1.7		SATURN		+0.6		STARS			SUN			MOON					Lat	Twilight		Sunrise		Moonrise																																																																																																																																																															
																																Nautical	Civil			1	2		3																																																																																																																																																												
S u n d a y	00	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	03:55	05:17	06:24	18:21	18:07	17:57																																																																																																																																																																
	01	9° 55'0	204° 42'5	7° 41'4 N	202° 07'6	6° 30'7 N	163° 34'0	9° 46'6 S	108° 17'6	22° 08'5 S	138° 22'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	123° 20'0	08'5	178° 36'0	46'8	

2017 October 4, 5, 6 (Wed, Thur, Fri)

GMT	ARIES			VENUS			-3.9	MARS			+1.8	JUPITER			-1.7	SATURN			+0.6	STARS					SUN				MOON					Lat	Twilight		Civil	Sunrise	Moonrise		
	GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	v	d	HP	N 72°	04:10	05:30	06:38	17:48	17:39	17:30											
Wednesday day	00	12° 52'.4	204° 12'.5	6° 19'.5 N	203° 19'.6	5° 46'.2 N	165° 55'.4	10° 00'.4 S	111° 03'.7	22° 09'.6 S	Acamar	315° 15'.8	40° 14'.0 S	182° 48'.0	4° 20'.2 S	22° 44'.4	11°.4	6° 36'.5 S	10°.6	57'.5	N 70°	04:19	05:31	06:32	17:43	17:40	17:38														
	01	27° 54'.9	219° 12'.1	18°.3	218° 20'.6	45° 45'.0	126° 06'.0	57° 08'.8 S	126° 06'.0	57° 08'.8 S	Achernar	335° 24'.1	180° 57'.0 S	197° 48'.2	21'.2	37° 14'.8	11°.4	25°.9	10°.7	68°	04:27	05:32	06:32	17:39	17:42	17:44															
	02	42° 57'.3	234° 11'.6	17°.2	233° 21'.6	44°.9	195° 59'.4	00°.8	141° 08'.3	09°.6	Acruz	173° 06'.7	63° 11'.7 S	212° 48'.4	22'.1	51° 45'.2	11°.4	15°.2	10°.7	57°.6	66°	04:33	05:33	06:24	17:36	17:43	17:50														
	03	57° 59'.8	249° 11'.2	16°.0	248° 22'.6	44°.3	211° 01'.3	01°.0	156° 10'.6	09°.7	Adhara	255° 10'.3	28° 59'.7 S	227° 48'.6	23'.1	66° 15'.6	11°.4	04°.5	10°.8	64°	04:38	05:33	06.21	17:33	17:43	17:55															
	04	73° 02'.3	264° 10'.8	14°.9	263° 23'.6	43°.7	226° 03'.3	01°.2	171° 12'.9	09°.7	Aldebaran	290° 45'.9	16° 32'.5 N	242° 48'.7	24'.1	80° 46'.0	11°.4	5° 53'.7 S	10°.8	62°	04:42	05:33	06.18	17:31	17:44	17:59															
	05	88° 04'.7	279° 10'.4	13°.7	278° 24'.6	43°.1	241° 05'.2	01°.4	186° 15'.2	09°.7				257° 48'.9	25'.0	95° 16'.4	11°.3	42°.9	10°.9	57°.7	60°	04:45	05.34	06.15	17:28	17:45	18:02														
	06	103° 07'.2	294° 10'.0	12°.6	293° 25'.7	42°.4	256° 07'.2	01°.5	201° 17'.5	09°.7	Alioth	166° 18'.8	55° 52'.0 N	272° 49'.1	26'.0	109° 46'.7	11°.4	32°.0	10°.8		N 58°	04:48	05.34	06.13	17:27	17:46	18:05														
	07	118° 09'.7	309° 09'.6	11°.4	308° 26'.7	41°.8	271° 09'.2	01°.7	216° 19'.8	09°.7	Alkaid	152° 57'.1	49° 13'.8 N	287° 49'.3</																											

2017 October 7, 8, 9 (Sat, Sun, Mon)

		ARIES		VENUS		-3.9		MARS		+1.8		JUPITER		-1.7		SATURN		+0.6		STARS				SUN				MOON				Lat	Twilight		Sunrise		7			Moonrise						
		GHA		GHA		Dec		GHA		Dec		GHA		Dec		GHA		Dec		Name		SHA		Dec		GHA		Dec		GHA		v		Dec		d		HP	N 72°	04:24	05:43	06:51	17:20	17:07	16:45	
S a t u r d a y	00	15° 49.8		203° 43.2		4° 55.7 N		204° 31.9		5° 01.4 N		168° 16.5		10° 14.1 S		113° 48.9		22° 10.7 S		Acamar		315° 15.8		40° 14.0 S		183° 01.5		5° 29.3 S		346° 13.1		9.2		7° 04.8 N		11.2		59.3		N 70°	04:32	05:43	06:44	17:36	17:34	17:34
	01	30° 52.3		218° 42.8		54.6		219° 32.9		00.8		183° 18.5		14.3		128° 51.2		10.7		Achernar		335° 24.1		57° 08.8 S		198° 01.6		30.3		0° 41.3		9.3		16.0		11.1		68°		04:38	05:42	06:38	17:48	17:55	18:06	
	02	45° 54.8		233° 42.4		53.4		234° 33.9		00.2		198° 20.4		14.5		143° 53.5		10.8		Acruz		173° 06.7		63° 11.6 S		213° 01.8		31.2		15° 09.6		9.1		27.1		11.2		59.4		66°	04:43	05:42	06:33	17:59	18:11	18:29
	03	60° 57.2		248° 42.0		52.2		249° 34.9		4° 59.5 N		213° 22.4		14.7		158° 55.8		10.8		Adhara		255° 10.2		28° 59.7 S		228° 02.0		32.2		29° 37.7		9.2		38.3		11.0		64°		04:47	05:42	06:29	18:08	18:24	18:48	
	04	75° 59.7		263° 41.6		51.0		264° 35.9		58.9		228° 24.4		14.9		173° 58.1		10.8		Aldebaran		290° 45.9		16° 32.5 N		243° 02.2		33.2		44° 05.9		9.1		49.3		11.1		62°		04:50	05:41	06:26	18:15	18:36	19:03	
	05	91° 02.2		278° 41.2		49.9		279° 36.9		58.3		243° 26.3		15.1		189° 00.4		10.8								258° 02.4		34.1		58° 34.0		9.0		8° 00.4 N		11.0		60°		04:53	05:41	06:23	18:22	18:46	19:16	
	06	106° 04.6		293° 40.8		48.7		294° 38.0		57.7		258° 28.3		15.3		204° 02.6		10.8		Alioth		166° 18.8		55° 52.0 N		273° 02.5		35.1		73° 02.0		9.0		11.4		11										

2017 October 10, 11, 12 (Tue, Wed, Thur)

	GMT	ARIES	VENUS	-3.9	MARS	+1.8	JUPITER	-1.7	SATURN	+0.6	STARS			SUN		MOON				Lat	Twilight		Sunrise	10	Moonrise		
		GHA	GHA	Dec	GHA	Dec	GHA	Dec	GHA	Dec	Name	SHA	Dec	GHA	Dec	GHA	v	Dec	d	HP	N 72°	Nautical	Civil		11	12	
Tuesday	00	18° 47.2	203° 14.6	3° 30.5' N	205° 44.4	4° 15.8 N	170° 37.3	10° 27.9 S	116° 33.4	22° 11.9 S	Acamar	315° 15.8	40° 14.0 S	183° 14.0	6° 37.8 S	306° 08.0	6.1	17° 40.2 N	5.4	59.7	N 70°	04:44	05:55	06:57	17:40	18:10	19:37
	01	33° 49.7	218° 14.2	29.3	220° 45.4	16.8	185° 39.3	28.1	131° 35.6	11.9	Achernar	335° 24.1	57° 08.8 S	198° 14.2	38.8	320° 33.1	6.0	45.6	5.2	68°	04:48	05:53	06:49	18:28	19:13	20:27	
	02	48° 52.2	233° 13.8	28.1	235° 46.5	15.2	200° 41.2	28.3	146° 37.9	11.9	Acruz	173° 06.7	63° 11.6 S	213° 14.3	39.7	334° 58.1	6.0	50.8	5.1	66°	04:52	05:52	06:43	19:00	19:48	20:59	
	03	63° 54.6	248° 13.4	26.9	250° 47.5	14.6	215° 43.2	28.5	161° 40.2	11.9	Adhara	255° 10.2	28° 59.7 S	228° 14.5	40.7	349° 23.1	6.0	55.9	5.0	64°	04:55	05:50	06:38	19:23	20:14	21:22	
	04	78° 57.1	263° 13.0	25.8	265° 48.5	13.9	230° 45.1	28.7	176° 42.5	11.9	Aldebaran	290° 45.8	16° 32.5 N	243° 14.7	41.6	3° 48.1	6.0	18° 00.9 N	4.9	62°	04:58	05:49	06:34	19:41	20:34	21:41	
	05	93° 59.6	278° 12.6	24.6	280° 49.5	13.3	245° 47.1	28.8	191° 44.8	11.9				258° 14.8	42.6	18° 13.1	5.9	05.8	4.7	60°	05:00	05:48	06:30	19:57	20:50	21:56	
	06	109° 02.0	293° 12.3	23.4	295° 50.5	12.7	260° 49.1	29.0	206° 47.0	12.0	Alioth	166° 18.8	55° 52.0 N	273° 15.0	43.5	32° 38.0	5.9	10.5	4.7	N 58°	05:01	05:47	06:26	20:10	21:04	22:09	
	07	124° 04.5	308° 11.9	22.2	310° 51.5	12.1	275° 51.0	29.2	221° 49.3	12.0	Alkaid	152° 57.1	49° 13.7 N	288° 15.2	44.5	47° 02.9	5.9	15.2	4.5		56°	05:03	05:46	06:23	20:21	21:16	22:20
	08	139° 07.0	323° 11.5	21.0	325° 52.5	11.4	290° 53.0	29.4	236° 51.6	12.0	Alnair	27° 39.8	46° 52.6 S	303° 15.3	45.4	61° 27.8	5.9	19.7	4.4	54°	05:04	05:45	06:20				

2017 October 16, 17, 18 (Mon, Tue, Wed)

	GMT	ARIES	VENUS		-3.9	MARS		+1.8	JUPITER		-1.7	SATURN		+0.6	STARS			SUN		MOON					Lat	Twilight		Sunrise	Moonrise		
															Name	SHA	Dec			GHA	v	Dec	d	HP		Nautical	Civil		16	17	18
Monday	00	GHA	GHA	Dec		GHA	Dec		GHA	Dec		GHA	Dec					GHA	Dec	GHA	v	Dec	d	HP	N 72°	05:05	06:23	07:35	00:51	02:44	04:31
	01	24° 42.1	202° 18.2	0° 36.9 N		208° 10.0	2° 46.0 N		175° 18.2	10° 55.3 S		122° 00.0	22° 14.2 S		Acamar	315° 15.8	40° 14.0 S	183° 35.7	8° 52.3 S	225° 24.5	10.9	10° 05.4 N	9.7	57.6	N 70°	05:07	06:18	07:22	01:08	02:51	04:32
	02	39° 44.5	217° 17.8	35.7		223° 11.0	45.3		190° 20.1	55.5		137° 02.3	14.2		Achernar	335° 24.1	57° 08.9 S	198° 35.9	53.2	239° 54.4	10.9	9° 55.7 N	9.9		68°	05:09	06:14	07:12	01:21	02:58	04:33
	03	54° 47.0	232° 17.5	34.5		238° 12.1	44.7		205° 22.1	55.7		152° 04.6	14.2		Acruar	173° 06.6	63° 11.6 S	213° 36.0	54.2	254° 24.3	11.0	45.8	9.9		66°	05:11	06:10	07:03	01:31	03:03	04:34
	04	69° 49.5	247° 17.1	33.3		253° 13.1	44.1		220° 24.0	55.9		167° 06.8	14.2		Adhara	255° 10.2	28° 59.7 S	228° 36.1	55.1	268° 54.3	11.0	35.9	9.9	57.5	64°	05:12	06:07	06:56	01:40	03:08	04:34
	05	84° 51.9	262° 16.7	32.0		268° 14.1	43.5		235° 26.0	56.1		182° 09.1	14.2		Aldebaran	290° 45.8	16° 32.5 N	243° 36.3	56.0	283° 24.3	11.1	26.0	10.0		62°	05:13	06:04	06:50	01:47	03:12	04:35
	06	99° 54.4	277° 16.3	30.8		283° 15.1	42.8		250° 27.9	56.3		197° 11.3	14.2					258° 36.4	56.9	297° 54.4	11.1	16.0									

