Introduction to Reports Generated by Astronomy Lab 2

In all reports, times and dates are in standard time (not daylight savings time or summer time). Times are in 24 hour format.

Abbreviations used in reports:

AU	Astronomical Units
D	Degrees
DEC	Declination
DIST	Distance
DSO	December Solstice
E	East
FM	Full Moon
FQ	First Quarter Moon
H	Hours
ILL FR, ILLUM FRAC	Illuminated Fraction
JSO	June Solstice
KM	Kilometers
LE	Lunar Eclipse
LQ	Last Quarter Moon
M	Minutes
MEQ	March Equinox
MR	Moon Rise
MS	Moon Set
N	North
NM	New Moon
RA	Right Ascension
S	South, Seconds
SE	Solar Eclipse
SEQ	September Equinox
SR	Sunrise
SS	Sunset
UT	Universal Time
W	West
ZHR	Zenithal Hourly Rate

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

Calendar Report for 1/ 1/2017 to 12/31/2017

January 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
SR: 7:49	SR: 7:49	SR: 7:50	SR: 7:50	SR: 7:50	SR: 7:49	SR: 7:49
SS: 17:10	SS: 17:11	SS: 17:12	SS: 17:13	SS: 17:14	SS: 17:15	SS: 17:16
MR: 9:59	MR: 10:35	MR: 11:09	MR: 11:43	MR: 12:16	MR: 12:52	MR: 13:30
MS: 20:51	MS: 21:53	MS: 22:57	MS: None	MS: 0:03	MS: 1:10	MS: 2:18
				FQ: 12:48		
8	9	10	11	12	13	14
SR: 7:49	SR: 7:49	SR: 7:49	SR: 7:49	SR: 7:48	SR: 7:48	SR: 7:48
SS: 17:17	SS: 17:18	SS: 17:19	SS: 17:20	SS: 17:21	SS: 17:22	SS: 17:23
MR: 14:13	MR: 15:02	MR: 15:57	MR: 16:58	MR: 18:03	MR: 19:09	MR: 20:15
MS: 3:28	MS: 4:37	MS: 5:44	MS: 6:47	MS: 7:43	MS: 8:32	MS: 9:15
				FM: 4:35		
15	16	17	18	19	20	21
SR: 7:47	SR: 7:47	SR: 7:46	SR: 7:46	SR: 7:45	SR: 7:45	SR: 7:44
SS: 17:24	SS: 17:25	SS: 17:27	SS: 17:28	SS: 17:29	SS: 17:30	SS: 17:31
MR: 21:19	MR: 22:21	MR: 23:20	MR: None	MR: 0:18	MR: 1:15	MR: 2:11
MS: 9:52	MS: 10:25	MS: 10:56	MS: 11:26	MS: 11:56	MS: 12:27	MS: 12:59
				LQ: 15:14		
22	23	24	25	26	27	28
SR: 7:43	SR: 7:43	SR: 7:42	SR: 7:41	SR: 7:40	SR: 7:40	SR: 7:39
SS: 17:32	SS: 17:34	SS: 17:35	SS: 17:36	SS: 17:37	SS: 17:38	SS: 17:40
MR: 3:06	MR: 4:01	MR: 4:54	MR: 5:45	MR: 6:33	MR: 7:17	MR: 7:58
MS: 13:35	MS: 14:15	MS: 14:59	MS: 15:48	MS: 16:42	MS: 17:40	MS: 18:42
					NM: 17:08	
29	30	31				
SR: 7:38	SR: 7:37	SR: 7:36				
SS: 17:41	SS: 17:42	SS: 17:43				
MR: 8:36	MR: 9:12	MR: 9:46				
MS: 19:45	MS: 20:50	MS: 21:55				

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

February 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 SR: 7:35 SS: 17:45 MR: 10:20 MS: 23:02	2 SR: 7:34 SS: 17:46 MR: 10:54 MS: None	3 SR: 7:33 SS: 17:47 MR: 11:31 MS: 0:09 FQ: 21:20	4 SR: 7:32 SS: 17:48 MR: 12:11 MS: 1:17
5 SR: 7:31 SS: 17:49 MR: 12:56 MS: 2:25	6 SR: 7:30 SS: 17:51 MR: 13:47 MS: 3:31	7 SR: 7:29 SS: 17:52 MR: 14:43 MS: 4:33	8 SR: 7:28 SS: 17:53 MR: 15:45 MS: 5:31	9 SR: 7:26 SS: 17:54 MR: 16:49 MS: 6:22	10 SR: 7:25 SS: 17:56 MR: 17:55 MS: 7:07 FM: 17:34	11 SR: 7:24 SS: 17:57 MR: 19:00 MS: 7:46
12 SR: 7:23 SS: 17:58 MR: 20:03 MS: 8:22	13 SR: 7:22 SS: 17:59 MR: 21:05 MS: 8:54	14 SR: 7:20 SS: 18:00 MR: 22:04 MS: 9:25	15 SR: 7:19 SS: 18:02 MR: 23:03 MS: 9:55	16 SR: 7:18 SS: 18:03 MR: 24:00 MS: 10:26	17 SR: 7:16 SS: 18:04 MR: None MS: 10:58	18 SR: 7:15 SS: 18:05 MR: 0:56 MS: 11:32 LQ: 12:35
19 SR: 7:14 SS: 18:06 MR: 1:50 MS: 12:10	20 SR: 7:12 SS: 18:07 MR: 2:44 MS: 12:52	21 SR: 7:11 SS: 18:09 MR: 3:35 MS: 13:39	22 SR: 7:09 SS: 18:10 MR: 4:24 MS: 14:30	23 SR: 7:08 SS: 18:11 MR: 5:10 MS: 15:27	24 SR: 7:07 SS: 18:12 MR: 5:53 MS: 16:27	25 SR: 7:05 SS: 18:13 MR: 6:33 MS: 17:31
26 SR: 7:04 SS: 18:14 MR: 7:10 MS: 18:36 NM: 8:00 SE: 7:55	27 SR: 7:02 SS: 18:16 MR: 7:45 MS: 19:43	28 SR: 7:01 SS: 18:17 MR: 8:20 MS: 20:51				

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

March 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 SR: 6:59 SS: 18:18 MR: 8:55 MS: 22:00	2 SR: 6:58 SS: 18:19 MR: 9:32 MS: 23:09	3 SR: 6:56 SS: 18:20 MR: 10:11 MS: None	4 SR: 6:55 SS: 18:21 MR: 10:55 MS: 0:17
5 SR: 6:53 SS: 18:22 MR: 11:43 MS: 1:24 FQ: 4:34	6 SR: 6:51 SS: 18:23 MR: 12:37 MS: 2:27	7 SR: 6:50 SS: 18:24 MR: 13:35 MS: 3:24	8 SR: 6:48 SS: 18:26 MR: 14:37 MS: 4:16	9 SR: 6:47 SS: 18:27 MR: 15:41 MS: 5:02	10 SR: 6:45 SS: 18:28 MR: 16:45 MS: 5:43	11 SR: 6:43 SS: 18:29 MR: 17:48 MS: 6:19
12 SR: 6:42 SS: 18:30 MR: 18:50 MS: 6:52 FM: 7:55	13 SR: 6:40 SS: 18:31 MR: 19:51 MS: 7:24	14 SR: 6:39 SS: 18:32 MR: 20:50 MS: 7:54	15 SR: 6:37 SS: 18:33 MR: 21:48 MS: 8:25	16 SR: 6:35 SS: 18:34 MR: 22:45 MS: 8:56	17 SR: 6:34 SS: 18:35 MR: 23:40 MS: 9:30	18 SR: 6:32 SS: 18:36 MR: None MS: 10:06
19 SR: 6:30 SS: 18:37 MR: 0:34 MS: 10:46	20 SR: 6:29 SS: 18:38 MR: 1:26 MS: 11:30 LQ: 9:01 MEQ: 3:25	21 SR: 6:27 SS: 18:39 MR: 2:16 MS: 12:19	22 SR: 6:25 SS: 18:41 MR: 3:03 MS: 13:13	23 SR: 6:24 SS: 18:42 MR: 3:46 MS: 14:10	24 SR: 6:22 SS: 18:43 MR: 4:27 MS: 15:12	25 SR: 6:21 SS: 18:44 MR: 5:05 MS: 16:16
26 SR: 6:19 SS: 18:45 MR: 5:41 MS: 17:23	27 SR: 6:17 SS: 18:46 MR: 6:16 MS: 18:32 NM: 19:59	28 SR: 6:16 SS: 18:47 MR: 6:52 MS: 19:43	29 SR: 6:14 SS: 18:48 MR: 7:28 MS: 20:54	30 SR: 6:12 SS: 18:49 MR: 8:08 MS: 22:05	31 SR: 6:11 SS: 18:50 MR: 8:51 MS: 23:15	

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

April 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 SR: 6:09 SS: 18:51 MR: 9:39 MS: None
2 SR: 6:07 SS: 18:52 MR: 10:32 MS: 0:20	3 SR: 6:06 SS: 18:53 MR: 11:30 MS: 1:21 FQ: 11:41	4 SR: 6:04 SS: 18:54 MR: 12:31 MS: 2:15	5 SR: 6:03 SS: 18:55 MR: 13:33 MS: 3:02	6 SR: 6:01 SS: 18:56 MR: 14:36 MS: 3:43	7 SR: 5:59 SS: 18:57 MR: 15:39 MS: 4:20	8 SR: 5:58 SS: 18:58 MR: 16:40 MS: 4:54
9 SR: 5:56 SS: 18:59 MR: 17:40 MS: 5:25	10 SR: 5:55 SS: 19:00 MR: 18:40 MS: 5:55 FM: 23:09	11 SR: 5:53 SS: 19:01 MR: 19:38 MS: 6:25	12 SR: 5:52 SS: 19:02 MR: 20:35 MS: 6:56	13 SR: 5:50 SS: 19:03 MR: 21:32 MS: 7:28	14 SR: 5:48 SS: 19:04 MR: 22:27 MS: 8:03	15 SR: 5:47 SS: 19:05 MR: 23:20 MS: 8:42
16 SR: 5:45 SS: 19:06 MR: None MS: 9:24	17 SR: 5:44 SS: 19:08 MR: 0:10 MS: 10:11	18 SR: 5:42 SS: 19:09 MR: 0:57 MS: 11:02	19 SR: 5:41 SS: 19:10 MR: 1:41 MS: 11:57 LQ: 3:00	20 SR: 5:39 SS: 19:11 MR: 2:22 MS: 12:55	21 SR: 5:38 SS: 19:12 MR: 3:00 MS: 13:57	22 SR: 5:37 SS: 19:13 MR: 3:36 MS: 15:02
23 SR: 5:35 SS: 19:14 MR: 4:11 MS: 16:09	24 SR: 5:34 SS: 19:15 MR: 4:45 MS: 17:19	25 SR: 5:32 SS: 19:16 MR: 5:21 MS: 18:30	26 SR: 5:31 SS: 19:17 MR: 6:00 MS: 19:43 NM: 5:18	27 SR: 5:30 SS: 19:18 MR: 6:42 MS: 20:56	28 SR: 5:28 SS: 19:19 MR: 7:29 MS: 22:07	29 SR: 5:27 SS: 19:20 MR: 8:22 MS: 23:12
30 SR: 5:26 SS: 19:21 MR: 9:20 MS: None						

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

May 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 SR: 5:25 SS: 19:22 MR: 10:22 MS: 0:10	2 SR: 5:23 SS: 19:23 MR: 11:26 MS: 1:01 FQ: 19:48	3 SR: 5:22 SS: 19:24 MR: 12:29 MS: 1:45	4 SR: 5:21 SS: 19:25 MR: 13:32 MS: 2:23	5 SR: 5:20 SS: 19:26 MR: 14:34 MS: 2:57	6 SR: 5:18 SS: 19:27 MR: 15:34 MS: 3:28
7 SR: 5:17 SS: 19:28 MR: 16:33 MS: 3:58	8 SR: 5:16 SS: 19:29 MR: 17:31 MS: 4:28	9 SR: 5:15 SS: 19:30 MR: 18:28 MS: 4:58	10 SR: 5:14 SS: 19:31 MR: 19:25 MS: 5:29 FM: 14:44	11 SR: 5:13 SS: 19:32 MR: 20:21 MS: 6:03	12 SR: 5:12 SS: 19:33 MR: 21:14 MS: 6:40	13 SR: 5:11 SS: 19:34 MR: 22:06 MS: 7:21
14 SR: 5:10 SS: 19:35 MR: 22:54 MS: 8:06	15 SR: 5:09 SS: 19:36 MR: 23:39 MS: 8:55	16 SR: 5:08 SS: 19:37 MR: None MS: 9:48	17 SR: 5:07 SS: 19:38 MR: 0:21 MS: 10:44	18 SR: 5:06 SS: 19:39 MR: 0:59 MS: 11:43 LQ: 17:36	19 SR: 5:06 SS: 19:40 MR: 1:34 MS: 12:45	20 SR: 5:05 SS: 19:41 MR: 2:08 MS: 13:49
21 SR: 5:04 SS: 19:42 MR: 2:42 MS: 14:56	22 SR: 5:03 SS: 19:43 MR: 3:16 MS: 16:05	23 SR: 5:03 SS: 19:43 MR: 3:52 MS: 17:17	24 SR: 5:02 SS: 19:44 MR: 4:31 MS: 18:30	25 SR: 5:01 SS: 19:45 MR: 5:16 MS: 19:43 NM: 12:46	26 SR: 5:01 SS: 19:46 MR: 6:06 MS: 20:54	27 SR: 5:00 SS: 19:47 MR: 7:03 MS: 21:58
28 SR: 4:59 SS: 19:48 MR: 8:06 MS: 22:54	29 SR: 4:59 SS: 19:48 MR: 9:11 MS: 23:42	30 SR: 4:58 SS: 19:49 MR: 10:18 MS: None	31 SR: 4:58 SS: 19:50 MR: 11:23 MS: 0:24			

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

June 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 SR: 4:57 SS: 19:51 MR: 12:26 MS: 1:00 FQ: 5:43	2 SR: 4:57 SS: 19:51 MR: 13:27 MS: 1:32	3 SR: 4:57 SS: 19:52 MR: 14:27 MS: 2:03
4 SR: 4:56 SS: 19:53 MR: 15:25 MS: 2:32	5 SR: 4:56 SS: 19:53 MR: 16:22 MS: 3:01	6 SR: 4:56 SS: 19:54 MR: 17:19 MS: 3:32	7 SR: 4:56 SS: 19:54 MR: 18:15 MS: 4:04	8 SR: 4:55 SS: 19:55 MR: 19:10 MS: 4:40	9 SR: 4:55 SS: 19:56 MR: 20:02 MS: 5:19 FM: 6:11	10 SR: 4:55 SS: 19:56 MR: 20:52 MS: 6:03
11 SR: 4:55 SS: 19:57 MR: 21:39 MS: 6:51	12 SR: 4:55 SS: 19:57 MR: 22:21 MS: 7:42	13 SR: 4:55 SS: 19:58 MR: 23:00 MS: 8:38	14 SR: 4:55 SS: 19:58 MR: 23:36 MS: 9:35	15 SR: 4:55 SS: 19:58 MR: None MS: 10:35	16 SR: 4:55 SS: 19:59 MR: 0:10 MS: 11:37	17 SR: 4:55 SS: 19:59 MR: 0:42 MS: 12:41 LQ: 4:35
18 SR: 4:55 SS: 19:59 MR: 1:15 MS: 13:47	19 SR: 4:55 SS: 20:00 MR: 1:48 MS: 14:55	20 SR: 4:55 SS: 20:00 MR: 2:25 MS: 16:06 JSO:21:22	21 SR: 4:56 SS: 20:00 MR: 3:05 MS: 17:18	22 SR: 4:56 SS: 20:00 MR: 3:51 MS: 18:29	23 SR: 4:56 SS: 20:00 MR: 4:45 MS: 19:37 NM: 19:33	24 SR: 4:56 SS: 20:00 MR: 5:45 MS: 20:39
25 SR: 4:57 SS: 20:00 MR: 6:50 MS: 21:33	26 SR: 4:57 SS: 20:01 MR: 7:58 MS: 22:19	27 SR: 4:58 SS: 20:01 MR: 9:06 MS: 22:59	28 SR: 4:58 SS: 20:01 MR: 10:13 MS: 23:33	29 SR: 4:58 SS: 20:00 MR: 11:16 MS: None	30 SR: 4:59 SS: 20:00 MR: 12:18 MS: 0:05 FQ: 17:52	

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

July 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 SR: 4:59 SS: 20:00 MR: 13:17 MS: 0:35
2 SR: 5:00 SS: 20:00 MR: 14:16 MS: 1:05	3 SR: 5:00 SS: 20:00 MR: 15:13 MS: 1:35	4 SR: 5:01 SS: 20:00 MR: 16:09 MS: 2:07	5 SR: 5:02 SS: 19:59 MR: 17:04 MS: 2:41	6 SR: 5:02 SS: 19:59 MR: 17:58 MS: 3:19	7 SR: 5:03 SS: 19:59 MR: 18:49 MS: 4:01	8 SR: 5:03 SS: 19:58 MR: 19:37 MS: 4:47 FM: 21:09
9 SR: 5:04 SS: 19:58 MR: 20:21 MS: 5:38	10 SR: 5:05 SS: 19:58 MR: 21:01 MS: 6:32	11 SR: 5:05 SS: 19:57 MR: 21:39 MS: 7:30	12 SR: 5:06 SS: 19:57 MR: 22:13 MS: 8:29	13 SR: 5:07 SS: 19:56 MR: 22:45 MS: 9:30	14 SR: 5:08 SS: 19:56 MR: 23:17 MS: 10:33	15 SR: 5:08 SS: 19:55 MR: 23:50 MS: 11:37
16 SR: 5:09 SS: 19:54 MR: None MS: 12:42 LQ: 12:28	17 SR: 5:10 SS: 19:54 MR: 0:24 MS: 13:50	18 SR: 5:11 SS: 19:53 MR: 1:01 MS: 14:59	19 SR: 5:12 SS: 19:52 MR: 1:43 MS: 16:08	20 SR: 5:13 SS: 19:52 MR: 2:31 MS: 17:16	21 SR: 5:13 SS: 19:51 MR: 3:26 MS: 18:20	22 SR: 5:14 SS: 19:50 MR: 4:28 MS: 19:18
23 SR: 5:15 SS: 19:49 MR: 5:35 MS: 20:09 NM: 2:47	24 SR: 5:16 SS: 19:48 MR: 6:44 MS: 20:52	25 SR: 5:17 SS: 19:47 MR: 7:53 MS: 21:30	26 SR: 5:18 SS: 19:47 MR: 8:59 MS: 22:04	27 SR: 5:19 SS: 19:46 MR: 10:04 MS: 22:36	28 SR: 5:20 SS: 19:45 MR: 11:05 MS: 23:06	29 SR: 5:21 SS: 19:44 MR: 12:05 MS: 23:36
30 SR: 5:22 SS: 19:43 MR: 13:04 MS: None FQ: 8:24	31 SR: 5:22 SS: 19:42 MR: 14:01 MS: 0:08					

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

August 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 SR: 5:23 SS: 19:40 MR: 14:56 MS: 0:41	2 SR: 5:24 SS: 19:39 MR: 15:51 MS: 1:18	3 SR: 5:25 SS: 19:38 MR: 16:43 MS: 1:58	4 SR: 5:26 SS: 19:37 MR: 17:32 MS: 2:42	5 SR: 5:27 SS: 19:36 MR: 18:18 MS: 3:32
6 SR: 5:28 SS: 19:35 MR: 19:00 MS: 4:25	7 SR: 5:29 SS: 19:33 MR: 19:39 MS: 5:22 FM: 11:13 LE: 11:20	8 SR: 5:30 SS: 19:32 MR: 20:15 MS: 6:22	9 SR: 5:31 SS: 19:31 MR: 20:48 MS: 7:23	10 SR: 5:32 SS: 19:30 MR: 21:21 MS: 8:26	11 SR: 5:33 SS: 19:28 MR: 21:53 MS: 9:30	12 SR: 5:34 SS: 19:27 MR: 22:26 MS: 10:35
13 SR: 5:35 SS: 19:26 MR: 23:01 MS: 11:41	14 SR: 5:36 SS: 19:24 MR: 23:40 MS: 12:48 LQ: 18:17	15 SR: 5:37 SS: 19:23 MR: None MS: 13:56	16 SR: 5:38 SS: 19:22 MR: 0:25 MS: 15:03	17 SR: 5:39 SS: 19:20 MR: 1:16 MS: 16:06	18 SR: 5:40 SS: 19:19 MR: 2:13 MS: 17:05	19 SR: 5:41 SS: 19:17 MR: 3:16 MS: 17:58
20 SR: 5:42 SS: 19:16 MR: 4:23 MS: 18:44	21 SR: 5:43 SS: 19:14 MR: 5:32 MS: 19:24 NM: 11:32 SE: 11:27	22 SR: 5:44 SS: 19:13 MR: 6:39 MS: 20:00	23 SR: 5:45 SS: 19:11 MR: 7:45 MS: 20:33	24 SR: 5:46 SS: 19:10 MR: 8:49 MS: 21:05	25 SR: 5:47 SS: 19:08 MR: 9:51 MS: 21:35	26 SR: 5:48 SS: 19:07 MR: 10:51 MS: 22:07
27 SR: 5:49 SS: 19:05 MR: 11:50 MS: 22:40	28 SR: 5:50 SS: 19:04 MR: 12:47 MS: 23:15	29 SR: 5:51 SS: 19:02 MR: 13:42 MS: 23:54 FQ: 1:14	30 SR: 5:52 SS: 19:01 MR: 14:35 MS: None	31 SR: 5:53 SS: 18:59 MR: 15:25 MS: 0:36		

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

September 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 SR: 5:53 SS: 18:57 MR: 16:12 MS: 1:24	2 SR: 5:54 SS: 18:56 MR: 16:56 MS: 2:15
3 SR: 5:55 SS: 18:54 MR: 17:36 MS: 3:11	4 SR: 5:56 SS: 18:52 MR: 18:13 MS: 4:10	5 SR: 5:57 SS: 18:51 MR: 18:48 MS: 5:12	6 SR: 5:58 SS: 18:49 MR: 19:21 MS: 6:15 FM: 0:05	7 SR: 5:59 SS: 18:48 MR: 19:54 MS: 7:20	8 SR: 6:00 SS: 18:46 MR: 20:28 MS: 8:26	9 SR: 6:01 SS: 18:44 MR: 21:03 MS: 9:33
10 SR: 6:02 SS: 18:43 MR: 21:41 MS: 10:41	11 SR: 6:03 SS: 18:41 MR: 22:23 MS: 11:48	12 SR: 6:04 SS: 18:39 MR: 23:11 MS: 12:55 LQ: 23:27	13 SR: 6:05 SS: 18:38 MR: None MS: 13:59	14 SR: 6:06 SS: 18:36 MR: 0:05 MS: 14:58	15 SR: 6:07 SS: 18:34 MR: 1:05 MS: 15:52	16 SR: 6:08 SS: 18:33 MR: 2:09 MS: 16:39
17 SR: 6:09 SS: 18:31 MR: 3:16 MS: 17:20	18 SR: 6:10 SS: 18:29 MR: 4:22 MS: 17:57	19 SR: 6:11 SS: 18:28 MR: 5:28 MS: 18:31 NM: 22:31	20 SR: 6:12 SS: 18:26 MR: 6:33 MS: 19:03	21 SR: 6:13 SS: 18:24 MR: 7:36 MS: 19:33	22 SR: 6:14 SS: 18:22 MR: 8:37 MS: 20:05 SEQ:12:59	23 SR: 6:15 SS: 18:21 MR: 9:37 MS: 20:37
24 SR: 6:16 SS: 18:19 MR: 10:35 MS: 21:12	25 SR: 6:17 SS: 18:17 MR: 11:32 MS: 21:49	26 SR: 6:18 SS: 18:16 MR: 12:26 MS: 22:30	27 SR: 6:19 SS: 18:14 MR: 13:17 MS: 23:15 FQ: 19:55	28 SR: 6:20 SS: 18:12 MR: 14:06 MS: None	29 SR: 6:21 SS: 18:11 MR: 14:50 MS: 0:05	30 SR: 6:22 SS: 18:09 MR: 15:32 MS: 0:58

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

October 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 SR: 6:23 SS: 18:07 MR: 16:10 MS: 1:55	2 SR: 6:24 SS: 18:06 MR: 16:45 MS: 2:56	3 SR: 6:25 SS: 18:04 MR: 17:19 MS: 3:58	4 SR: 6:26 SS: 18:03 MR: 17:52 MS: 5:03	5 SR: 6:27 SS: 18:01 MR: 18:26 MS: 6:10 FM: 11:42	6 SR: 6:28 SS: 17:59 MR: 19:01 MS: 7:18	7 SR: 6:29 SS: 17:58 MR: 19:39 MS: 8:28
8 SR: 6:30 SS: 17:56 MR: 20:20 MS: 9:38	9 SR: 6:31 SS: 17:55 MR: 21:08 MS: 10:47	10 SR: 6:32 SS: 17:53 MR: 22:01 MS: 11:53	11 SR: 6:33 SS: 17:51 MR: 22:59 MS: 12:55	12 SR: 6:34 SS: 17:50 MR: None MS: 13:50 LQ: 5:27	13 SR: 6:35 SS: 17:48 MR: 0:01 MS: 14:38	14 SR: 6:36 SS: 17:47 MR: 1:06 MS: 15:20
15 SR: 6:37 SS: 17:45 MR: 2:12 MS: 15:57	16 SR: 6:38 SS: 17:44 MR: 3:17 MS: 16:31	17 SR: 6:39 SS: 17:42 MR: 4:21 MS: 17:03	18 SR: 6:41 SS: 17:41 MR: 5:23 MS: 17:33	19 SR: 6:42 SS: 17:39 MR: 6:25 MS: 18:04 NM: 12:13	20 SR: 6:43 SS: 17:38 MR: 7:25 MS: 18:35	21 SR: 6:44 SS: 17:37 MR: 8:24 MS: 19:09
22 SR: 6:45 SS: 17:35 MR: 9:22 MS: 19:45	23 SR: 6:46 SS: 17:34 MR: 10:18 MS: 20:25	24 SR: 6:47 SS: 17:32 MR: 11:10 MS: 21:08	25 SR: 6:48 SS: 17:31 MR: 12:00 MS: 21:56	26 SR: 6:49 SS: 17:30 MR: 12:46 MS: 22:47	27 SR: 6:51 SS: 17:28 MR: 13:28 MS: 23:42 FQ: 15:23	28 SR: 6:52 SS: 17:27 MR: 14:06 MS: None
29 SR: 6:53 SS: 17:26 MR: 14:42 MS: 0:40	30 SR: 6:54 SS: 17:25 MR: 15:16 MS: 1:40	31 SR: 6:55 SS: 17:23 MR: 15:48 MS: 2:43				

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

November 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 SR: 6:56 SS: 17:22 MR: 16:21 MS: 3:48	2 SR: 6:57 SS: 17:21 MR: 16:55 MS: 4:56	3 SR: 6:59 SS: 17:20 MR: 17:32 MS: 6:06 FM: 22:24	4 SR: 7:00 SS: 17:19 MR: 18:13 MS: 7:18
5 SR: 7:01 SS: 17:18 MR: 18:59 MS: 8:30	6 SR: 7:02 SS: 17:17 MR: 19:51 MS: 9:41	7 SR: 7:03 SS: 17:15 MR: 20:50 MS: 10:47	8 SR: 7:04 SS: 17:14 MR: 21:53 MS: 11:46	9 SR: 7:06 SS: 17:13 MR: 22:58 MS: 12:37	10 SR: 7:07 SS: 17:13 MR: None MS: 13:22 LQ: 13:38	11 SR: 7:08 SS: 17:12 MR: 0:04 MS: 14:00
12 SR: 7:09 SS: 17:11 MR: 1:10 MS: 14:35	13 SR: 7:10 SS: 17:10 MR: 2:13 MS: 15:06	14 SR: 7:12 SS: 17:09 MR: 3:15 MS: 15:36	15 SR: 7:13 SS: 17:08 MR: 4:16 MS: 16:06	16 SR: 7:14 SS: 17:07 MR: 5:16 MS: 16:36	17 SR: 7:15 SS: 17:07 MR: 6:15 MS: 17:09	18 SR: 7:16 SS: 17:06 MR: 7:14 MS: 17:43 NM: 4:43
19 SR: 7:17 SS: 17:05 MR: 8:10 MS: 18:21	20 SR: 7:18 SS: 17:05 MR: 9:04 MS: 19:03	21 SR: 7:20 SS: 17:04 MR: 9:55 MS: 19:49	22 SR: 7:21 SS: 17:03 MR: 10:43 MS: 20:39	23 SR: 7:22 SS: 17:03 MR: 11:26 MS: 21:32	24 SR: 7:23 SS: 17:02 MR: 12:05 MS: 22:28	25 SR: 7:24 SS: 17:02 MR: 12:41 MS: 23:26
26 SR: 7:25 SS: 17:01 MR: 13:15 MS: None FQ: 10:03	27 SR: 7:26 SS: 17:01 MR: 13:47 MS: 0:27	28 SR: 7:27 SS: 17:01 MR: 14:18 MS: 1:29	29 SR: 7:28 SS: 17:00 MR: 14:50 MS: 2:33	30 SR: 7:29 SS: 17:00 MR: 15:24 MS: 3:41		

December 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 SR: 7:30 SS: 17:00 MR: 16:02 MS: 4:51	2 SR: 7:31 SS: 16:59 MR: 16:45 MS: 6:03
3 SR: 7:32 SS: 16:59 MR: 17:35 MS: 7:16 FM: 8:49	4 SR: 7:33 SS: 16:59 MR: 18:32 MS: 8:27	5 SR: 7:34 SS: 16:59 MR: 19:36 MS: 9:32	6 SR: 7:35 SS: 16:59 MR: 20:43 MS: 10:30	7 SR: 7:36 SS: 16:59 MR: 21:52 MS: 11:19	8 SR: 7:37 SS: 16:59 MR: 23:00 MS: 12:01	9 SR: 7:38 SS: 16:59 MR: None MS: 12:38
10 SR: 7:39 SS: 16:59 MR: 0:05 MS: 13:11 LQ: 0:53	11 SR: 7:39 SS: 16:59 MR: 1:09 MS: 13:41	12 SR: 7:40 SS: 16:59 MR: 2:10 MS: 14:10	13 SR: 7:41 SS: 17:00 MR: 3:10 MS: 14:40	14 SR: 7:42 SS: 17:00 MR: 4:09 MS: 15:11	15 SR: 7:42 SS: 17:00 MR: 5:07 MS: 15:44	16 SR: 7:43 SS: 17:00 MR: 6:04 MS: 16:21
17 SR: 7:44 SS: 17:01 MR: 6:59 MS: 17:01 NM: 23:31	18 SR: 7:44 SS: 17:01 MR: 7:51 MS: 17:45	19 SR: 7:45 SS: 17:02 MR: 8:40 MS: 18:34	20 SR: 7:45 SS: 17:02 MR: 9:25 MS: 19:26	21 SR: 7:46 SS: 17:03 MR: 10:06 MS: 20:21 DSO: 9:28	22 SR: 7:46 SS: 17:03 MR: 10:43 MS: 21:18	23 SR: 7:47 SS: 17:04 MR: 11:17 MS: 22:17
24 SR: 7:47 SS: 17:04 MR: 11:48 MS: 23:17	25 SR: 7:48 SS: 17:05 MR: 12:19 MS: None	26 SR: 7:48 SS: 17:05 MR: 12:49 MS: 0:18 FQ: 2:20	27 SR: 7:48 SS: 17:06 MR: 13:21 MS: 1:22	28 SR: 7:49 SS: 17:07 MR: 13:55 MS: 2:28	29 SR: 7:49 SS: 17:08 MR: 14:34 MS: 3:37	30 SR: 7:49 SS: 17:08 MR: 15:19 MS: 4:48
31 SR: 7:49 SS: 17:09 MR: 16:11 MS: 6:00						

Seasons Report for 2017

MEQ:	3/20/2017 3:25	Winter Length:	88.99 days
JSO:	6/20/2017 21:22	Spring Length:	92.75 days
SEQ:	9/22/2017 12:59	Summer Length:	93.65 days
DSO:	12/21/2017 9:28	Autumn Length:	89.85 days

Dates of Easter Report for 2017

4/16/2017

Lunar Eclipse Report for 2017

Lunar eclipse on 8/ 7/2017
Moon rise: 19:39
Moon set: 5:22
Magnitude: 0.25
Partial phase begins: 10:23
Time of maximum eclipse: 11:20
Partial phase ends: 12:18

Solar Eclipse Report for 2017

Solar eclipse on 2/26/2017
Sun rise: 7:04
Sun set: 18:14
Time of maximum eclipse: 7:55
Eclipse is annular
Eclipse is visible in the southern hemisphere

Solar eclipse on 8/21/2017
Sun rise: 5:43
Sun set: 19:14
Time of maximum eclipse: 11:27
Eclipse is total
Eclipse is visible in the northern hemisphere

The time of maximum eclipse (above) does not necessarily specify when the eclipse will be maximal when viewed from the specified location.

To see how the eclipse will look at the specified location, run a Planetarium movie of the eclipse.

Planet View Info Report for 1/ 1/2017 to 12/31/2017

Mercury

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2017	7:02	16:38	18h13m55s	-20°21'04"	8°04'51"	0.049	0.68502
1/ 8/2017	6:19	15:55	17h55m08s	-20°24'05"	19°16'01"	0.300	0.78640
1/15/2017	6:09	15:38	18h06m32s	-21°21'27"	23°35'11"	0.530	0.92521
1/22/2017	6:14	15:37	18h35m23s	-22°14'48"	23°59'00"	0.682	1.05519
1/29/2017	6:25	15:48	19h12m54s	-22°29'01"	22°28'16"	0.779	1.16386
2/ 5/2017	6:37	16:06	19h54m52s	-21°48'24"	19°53'53"	0.847	1.25008
2/12/2017	6:46	16:30	20h39m13s	-20°06'03"	16°33'55"	0.898	1.31503
2/19/2017	6:53	17:00	21h24m58s	-17°18'49"	12°32'19"	0.939	1.35907
2/26/2017	6:58	17:35	22h11m42s	-13°25'30"	7°47'37"	0.974	1.38015
3/ 5/2017	7:00	18:14	22h59m28s	-8°27'09"	2°34'20"	0.997	1.37226
3/12/2017	7:00	18:56	23h48m15s	-2°30'38"	4°50'15"	0.985	1.32379
3/19/2017	6:59	19:39	0h36m51s	3°59'18"	11°27'31"	0.888	1.21966
3/26/2017	6:54	20:15	1h20m52s	10°03'40"	16°58'44"	0.668	1.05827
4/ 2/2017	6:41	20:31	1h52m35s	14°23'43"	18°58'37"	0.391	0.87266
4/ 9/2017	6:19	20:18	2h05m39s	16°06'01"	15°46'21"	0.160	0.71086
4/16/2017	5:50	19:36	1h59m47s	14°56'10"	7°19'42"	0.025	0.60523
4/23/2017	5:19	18:41	1h44m16s	11°45'12"	4°42'35"	0.009	0.56836
4/30/2017	4:52	17:54	1h33m26s	8°38'38"	15°04'50"	0.089	0.59371
5/ 7/2017	4:32	17:26	1h35m11s	7°14'48"	22°04'25"	0.209	0.66301
5/14/2017	4:17	17:18	1h49m39s	7°49'48"	25°20'05"	0.332	0.75951
5/21/2017	4:07	17:25	2h14m38s	9°59'46"	25°32'22"	0.454	0.87284
5/28/2017	4:02	17:45	2h48m39s	13°14'54"	23°17'16"	0.581	0.99643
6/ 4/2017	4:03	18:17	3h31m42s	17°05'29"	18°53'03"	0.722	1.12272
6/11/2017	4:14	18:59	4h24m43s	20°54'14"	12°27'55"	0.873	1.23664
6/18/2017	4:38	19:47	5h27m21s	23°46'00"	4°27'45"	0.983	1.31091
6/25/2017	5:14	20:29	6h34m29s	24°41'37"	4°26'42"	0.984	1.32018
7/ 2/2017	5:56	20:57	7h37m52s	23°26'16"	12°10'15"	0.894	1.26908
7/ 9/2017	6:35	21:09	8h32m39s	20°34'06"	18°26'42"	0.781	1.18320
7/16/2017	7:07	21:10	9h18m04s	16°48'28"	23°05'27"	0.674	1.08293
7/23/2017	7:31	21:03	9h54m40s	12°43'50"	26°04'27"	0.573	0.97835
7/30/2017	7:44	20:48	10h22m33s	8°48'34"	27°12'00"	0.469	0.87411
8/ 6/2017	7:45	20:26	10h40m37s	5°32'10"	25°58'19"	0.352	0.77420
8/13/2017	7:28	19:55	10h46m15s	3°33'36"	21°31'57"	0.216	0.68628
8/20/2017	6:49	19:18	10h36m54s	3°41'49"	13°05'21"	0.079	0.62709
8/27/2017	5:51	18:39	10h16m11s	6°15'06"	4°12'01"	0.009	0.62540
9/ 3/2017	4:58	18:10	10h00m37s	9°38'58"	12°04'30"	0.102	0.70815
9/10/2017	4:34	17:58	10h07m43s	11°17'04"	17°33'55"	0.358	0.87019
9/17/2017	4:44	17:58	10h38m48s	9°54'40"	16°48'34"	0.666	1.06463
9/24/2017	5:16	18:01	11h22m45s	6°00'47"	12°12'03"	0.882	1.23162
10/ 1/2017	5:52	18:01	12h09m15s	0°52'10"	6°28'03"	0.976	1.34315
10/ 8/2017	6:28	18:00	12h54m21s	-4°31'28"	1°21'12"	0.999	1.40385
10/15/2017	7:02	17:58	13h37m46s	-9°40'03"	4°22'03"	0.992	1.42565
10/22/2017	7:34	17:56	14h20m13s	-14°19'26"	8°44'35"	0.972	1.41694
10/29/2017	8:04	17:56	15h02m25s	-18°21'14"	12°40'23"	0.942	1.38180
11/ 5/2017	8:31	17:58	15h44m44s	-21°38'23"	16°10'07"	0.900	1.32125
11/12/2017	8:56	18:02	16h26m51s	-24°03'13"	19°10'04"	0.839	1.23414
11/19/2017	9:14	18:09	17h07m05s	-25°27'17"	21°22'05"	0.741	1.11820
11/26/2017	9:19	18:13	17h40m44s	-25°42'47"	21°51'41"	0.577	0.97336
12/ 3/2017	9:01	18:02	17h56m52s	-24°45'52"	18°19'50"	0.316	0.81329
12/10/2017	8:03	17:22	17h39m27s	-22°37'18"	7°11'15"	0.041	0.69321
12/17/2017	6:48	16:28	17h01m19s	-20°05'49"	9°22'42"	0.070	0.70117
12/24/2017	6:09	15:53	16h48m06s	-19°29'31"	19°30'03"	0.352	0.82549
12/31/2017	6:04	15:39	17h04m30s	-20°40'08"	22°33'34"	0.591	0.97802

Venus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2017	10:27	21:00	22h00m47s	-13°41'43"	46°45'08"	0.566	0.76940
1/ 8/2017	10:16	21:12	22h28m35s	-10°32'47"	47°04'43"	0.533	0.71775
1/15/2017	10:03	21:21	22h54m35s	-7°15'50"	47°07'26"	0.498	0.66586
1/22/2017	9:47	21:29	23h18m40s	-3°55'40"	46°48'46"	0.459	0.61405
1/29/2017	9:30	21:34	23h40m37s	-0°37'09"	46°03'12"	0.416	0.56262
2/ 5/2017	9:11	21:37	0h00m05s	2°34'21"	44°43'05"	0.369	0.51194
2/12/2017	8:49	21:35	0h16m27s	5°32'33"	42°37'32"	0.317	0.46267
2/19/2017	8:25	21:28	0h28m49s	8°09'55"	39°32'38"	0.259	0.41580
2/26/2017	7:57	21:14	0h36m08s	10°16'55"	35°12'07"	0.196	0.37264
3/ 5/2017	7:25	20:51	0h37m11s	11°40'27"	29°19'18"	0.131	0.33495
3/12/2017	6:50	20:17	0h31m10s	12°04'33"	21°47'22"	0.071	0.30523
3/19/2017	6:13	19:33	0h18m53s	11°17'04"	13°16'49"	0.026	0.28647
3/26/2017	5:37	18:43	0h03m39s	9°23'22"	8°17'55"	0.010	0.28118
4/ 2/2017	5:05	17:54	23h50m11s	6°53'39"	13°57'54"	0.029	0.29024
4/ 9/2017	4:39	17:11	23h42m23s	4°29'40"	22°19'58"	0.075	0.31259
4/16/2017	4:17	16:39	23h41m51s	2°42'46"	29°33'59"	0.136	0.34580
4/23/2017	3:59	16:15	23h48m12s	1°45'14"	35°08'20"	0.199	0.38700
4/30/2017	3:44	16:00	0h00m08s	1°35'39"	39°12'18"	0.261	0.43377
5/ 7/2017	3:31	15:51	0h16m19s	2°07'06"	42°03'13"	0.318	0.48437
5/14/2017	3:19	15:48	0h35m41s	3°11'47"	43°56'55"	0.369	0.53760
5/21/2017	3:08	15:47	0h57m29s	4°42'10"	45°06'29"	0.416	0.59246
5/28/2017	2:58	15:50	1h21m11s	6°31'05"	45°42'20"	0.459	0.64822
6/ 4/2017	2:49	15:55	1h46m25s	8°32'08"	45°52'03"	0.499	0.70441
6/11/2017	2:40	16:02	2h13m01s	10°39'42"	45°40'55"	0.535	0.76068
6/18/2017	2:33	16:10	2h40m53s	12°48'32"	45°13'04"	0.569	0.81667
6/25/2017	2:27	16:20	3h09m59s	14°53'35"	44°31'57"	0.601	0.87206
7/ 2/2017	2:22	16:30	3h40m15s	16°50'01"	43°40'05"	0.631	0.92660
7/ 9/2017	2:19	16:41	4h11m39s	18°33'21"	42°39'11"	0.660	0.98019
7/16/2017	2:18	16:51	4h44m10s	19°59'24"	41°30'39"	0.687	1.03263
7/23/2017	2:20	17:02	5h17m40s	21°04'18"	40°15'54"	0.713	1.08370
7/30/2017	2:24	17:11	5h51m59s	21°44'46"	38°55'59"	0.737	1.13323
8/ 6/2017	2:30	17:19	6h26m53s	21°58'16"	37°31'32"	0.760	1.18117
8/13/2017	2:39	17:25	7h02m08s	21°43'10"	36°03'08"	0.782	1.22743
8/20/2017	2:50	17:30	7h37m28s	20°58'48"	34°31'31"	0.804	1.27184
8/27/2017	3:03	17:32	8h12m37s	19°45'36"	32°57'14"	0.824	1.31426
9/ 3/2017	3:17	17:32	8h47m22s	18°04'59"	31°20'35"	0.842	1.35468
9/10/2017	3:32	17:30	9h21m35s	15°59'10"	29°41'51"	0.860	1.39306
9/17/2017	3:47	17:27	9h55m14s	13°30'57"	28°01'29"	0.877	1.42932
9/24/2017	4:03	17:22	10h28m18s	10°43'44"	26°19'53"	0.893	1.46334
10/ 1/2017	4:19	17:16	11h00m51s	7°41'14"	24°37'13"	0.907	1.49512
10/ 8/2017	4:35	17:09	11h33m03s	4°27'19"	22°53'37"	0.921	1.52470
10/15/2017	4:51	17:02	12h05m03s	1°05'53"	21°09'27"	0.933	1.55205
10/22/2017	5:07	16:55	12h37m03s	-2°18'55"	19°24'59"	0.944	1.57711
10/29/2017	5:23	16:48	13h09m17s	-5°42'49"	17°40'21"	0.954	1.59988
11/ 5/2017	5:40	16:41	13h41m56s	-9°01'30"	15°55'36"	0.963	1.62045
11/12/2017	5:57	16:36	14h15m13s	-12°10'35"	14°10'59"	0.971	1.63886
11/19/2017	6:14	16:32	14h49m19s	-15°05'33"	12°26'43"	0.978	1.65509
11/26/2017	6:31	16:30	15h24m21s	-17°41'45"	10°42'53"	0.984	1.66912
12/ 3/2017	6:48	16:30	16h00m21s	-19°54'42"	8°59'27"	0.989	1.68107
12/10/2017	7:05	16:32	16h37m17s	-21°40'11"	7°16'37"	0.993	1.69101
12/17/2017	7:20	16:37	17h15m01s	-22°54'35"	5°34'38"	0.996	1.69895
12/24/2017	7:34	16:46	17h53m18s	-23°35'04"	3°53'50"	0.998	1.70484
12/31/2017	7:45	16:57	18h31m47s	-23°39'58"	2°15'29"	0.999	1.70877

Mars

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2017	10:54	22:01	22h45m43s	-8°48'25"	58°46'25"	0.901	1.64051
1/ 8/2017	10:39	22:00	23h05m14s	-6°40'45"	56°55'17"	0.907	1.68734
1/15/2017	10:23	21:59	23h24m34s	-4°31'01"	55°03'42"	0.912	1.73439
1/22/2017	10:07	21:58	23h43m44s	-2°20'13"	53°11'27"	0.917	1.78165
1/29/2017	9:51	21:57	0h02m47s	-0°09'17"	51°18'31"	0.922	1.82900
2/ 5/2017	9:35	21:56	0h21m46s	2°00'49"	49°25'07"	0.928	1.87623
2/12/2017	9:19	21:55	0h40m43s	4°09'06"	47°31'14"	0.933	1.92325
2/19/2017	9:03	21:53	0h59m39s	6°14'41"	45°36'42"	0.938	1.97002
2/26/2017	8:47	21:52	1h18m39s	8°16'47"	43°41'28"	0.943	2.01638
3/ 5/2017	8:32	21:50	1h37m43s	10°14'34"	41°45'48"	0.947	2.06213
3/12/2017	8:17	21:49	1h56m54s	12°07'13"	39°49'45"	0.952	2.10713
3/19/2017	8:02	21:47	2h16m13s	13°53'58"	37°53'12"	0.956	2.15131
3/26/2017	7:48	21:45	2h35m41s	15°34'12"	35°56'03"	0.961	2.19455
4/ 2/2017	7:34	21:43	2h55m20s	17°07'14"	33°58'30"	0.965	2.23663
4/ 9/2017	7:20	21:41	3h15m09s	18°32'24"	32°00'38"	0.969	2.27739
4/16/2017	7:08	21:38	3h35m09s	19°49'10"	30°02'22"	0.972	2.31678
4/23/2017	6:56	21:36	3h55m18s	20°57'03"	28°03'32"	0.976	2.35468
4/30/2017	6:44	21:32	4h15m36s	21°55'36"	26°04'12"	0.979	2.39089
5/ 7/2017	6:34	21:29	4h36m00s	22°44'29"	24°04'29"	0.982	2.42524
5/14/2017	6:24	21:24	4h56m30s	23°23'24"	22°04'20"	0.985	2.45770
5/21/2017	6:15	21:19	5h17m02s	23°52'11"	20°03'31"	0.988	2.48817
5/28/2017	6:06	21:13	5h37m34s	24°10'45"	18°02'01"	0.990	2.51647
6/ 4/2017	5:58	21:07	5h58m03s	24°19'07"	15°59'56"	0.992	2.54244
6/11/2017	5:51	20:59	6h18m26s	24°17'23"	13°57'15"	0.994	2.56605
6/18/2017	5:45	20:51	6h38m40s	24°05'46"	11°53'46"	0.996	2.58723
6/25/2017	5:39	20:42	6h58m44s	23°44'31"	9°49'27"	0.997	2.60583
7/ 2/2017	5:34	20:31	7h18m34s	23°14'01"	7°44'29"	0.998	2.62170
7/ 9/2017	5:28	20:20	7h38m09s	22°34'41"	5°39'19"	0.999	2.63480
7/16/2017	5:24	20:09	7h57m27s	21°47'01"	3°35'04"	1.000	2.64512
7/23/2017	5:19	19:56	8h16m27s	20°51'30"	1°40'03"	1.000	2.65253
7/30/2017	5:14	19:43	8h35m09s	19°48'41"	1°26'27"	1.000	2.65689
8/ 6/2017	5:10	19:29	8h53m32s	18°39'11"	3°19'18"	1.000	2.65817
8/13/2017	5:05	19:14	9h11m37s	17°23'32"	5°28'29"	0.999	2.65640
8/20/2017	5:01	18:59	9h29m25s	16°02'19"	7°41'57"	0.998	2.65147
8/27/2017	4:56	18:43	9h46m56s	14°36'07"	9°58'02"	0.997	2.64328
9/ 3/2017	4:52	18:27	10h04m12s	13°05'33"	12°16'08"	0.996	2.63183
9/10/2017	4:47	18:11	10h21m13s	11°31'10"	14°36'08"	0.994	2.61716
9/17/2017	4:42	17:54	10h38m03s	9°53'29"	16°58'10"	0.992	2.59924
9/24/2017	4:37	17:37	10h54m41s	8°13'04"	19°22'13"	0.990	2.57797
10/ 1/2017	4:32	17:20	11h11m11s	6°30'30"	21°48'07"	0.987	2.55340
10/ 8/2017	4:26	17:03	11h27m33s	4°46'18"	24°15'48"	0.985	2.52562
10/15/2017	4:21	16:46	11h43m50s	3°00'57"	26°45'24"	0.981	2.49464
10/22/2017	4:16	16:28	12h00m04s	1°15'00"	29°16'58"	0.978	2.46044
10/29/2017	4:11	16:11	12h16m17s	-0°31'01"	31°50'19"	0.975	2.42309
11/ 5/2017	4:05	15:54	12h32m29s	-2°16'33"	34°25'16"	0.971	2.38273
11/12/2017	4:00	15:36	12h48m44s	-4°01'08"	37°01'51"	0.967	2.33947
11/19/2017	3:54	15:19	13h05m03s	-5°44'16"	39°40'09"	0.962	2.29332
11/26/2017	3:49	15:02	13h21m27s	-7°25'21"	42°19'58"	0.958	2.24441
12/ 3/2017	3:44	14:45	13h37m58s	-9°03'52"	45°01'02"	0.953	2.19295
12/10/2017	3:38	14:29	13h54m37s	-10°39'21"	47°43'18"	0.948	2.13910
12/17/2017	3:33	14:13	14h11m25s	-12°11'16"	50°26'49"	0.943	2.08295
12/24/2017	3:28	13:57	14h28m22s	-13°39'04"	53°11'28"	0.938	2.02466
12/31/2017	3:23	13:41	14h45m30s	-15°02'14"	55°56'57"	0.933	1.96451

Jupiter

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2017	1:23	12:38	13h20m04s	-7°03'26"	79°37'37"	0.992	5.54505
1/ 8/2017	0:58	12:13	13h22m38s	-7°17'06"	86°05'05"	0.992	5.43279
1/15/2017	0:34	11:46	13h24m43s	-7°27'43"	92°40'06"	0.992	5.31971
1/22/2017	0:08	11:20	13h26m17s	-7°35'09"	99°23'12"	0.992	5.20719
1/29/2017	23:38	10:53	13h27m17s	-7°39'16"	106°14'44"	0.992	5.09677
2/ 5/2017	23:11	10:26	13h27m44s	-7°39'58"	113°14'37"	0.993	4.99013
2/12/2017	22:43	9:59	13h27m35s	-7°37'17"	120°22'35"	0.994	4.88896
2/19/2017	22:14	9:31	13h26m52s	-7°31'15"	127°38'39"	0.995	4.79481
2/26/2017	21:45	9:02	13h25m35s	-7°21'58"	135°02'35"	0.996	4.70931
3/ 5/2017	21:14	8:34	13h23m46s	-7°09'40"	142°33'30"	0.997	4.63408
3/12/2017	20:44	8:05	13h21m28s	-6°54'42"	150°10'06"	0.998	4.57054
3/19/2017	20:12	7:35	13h18m47s	-6°37'30"	157°51'08"	0.999	4.51983
3/26/2017	19:41	7:06	13h15m46s	-6°18'35"	165°34'52"	0.999	4.48295
4/ 2/2017	19:09	6:36	13h12m32s	-5°58'34"	173°16'11"	1.000	4.46070
4/ 9/2017	18:37	6:07	13h09m12s	-5°38'09"	177°59'20"	1.000	4.45346
4/16/2017	18:05	5:37	13h05m53s	-5°18'03"	170°52'01"	1.000	4.46118
4/23/2017	17:33	5:07	13h02m41s	-4°58'56"	163°14'09"	0.999	4.48363
4/30/2017	17:02	4:38	12h59m43s	-4°41'28"	155°39'05"	0.999	4.52031
5/ 7/2017	16:31	4:09	12h57m04s	-4°26'13"	148°10'16"	0.998	4.57030
5/14/2017	16:00	3:40	12h54m49s	-4°13'40"	140°49'14"	0.997	4.63243
5/21/2017	15:31	3:11	12h53m02s	-4°04'09"	133°36'39"	0.995	4.70546
5/28/2017	15:02	2:43	12h51m45s	-3°57'55"	126°33'06"	0.994	4.78807
6/ 4/2017	14:33	2:14	12h51m00s	-3°55'08"	119°39'14"	0.993	4.87871
6/11/2017	14:06	1:47	12h50m47s	-3°55'49"	112°55'08"	0.993	4.97580
6/18/2017	13:39	1:19	12h51m07s	-3°59'54"	106°20'18"	0.992	5.07789
6/25/2017	13:13	0:52	12h51m59s	-4°07'20"	99°54'20"	0.991	5.18357
7/ 2/2017	12:47	0:25	12h53m22s	-4°17'58"	93°37'00"	0.991	5.29135
7/ 9/2017	12:22	23:55	12h55m14s	-4°31'36"	87°27'51"	0.991	5.39981
7/16/2017	11:58	23:29	12h57m34s	-4°47'59"	81°26'00"	0.991	5.50774
7/23/2017	11:35	23:03	13h00m20s	-5°06'57"	75°30'38"	0.992	5.61399
7/30/2017	11:11	22:38	13h03m30s	-5°28'16"	69°41'16"	0.992	5.71738
8/ 6/2017	10:49	22:13	13h07m03s	-5°51'40"	63°57'21"	0.993	5.81681
8/13/2017	10:27	21:47	13h10m56s	-6°16'54"	58°18'04"	0.994	5.91139
8/20/2017	10:05	21:23	13h15m08s	-6°43'46"	52°42'33"	0.995	6.00031
8/27/2017	9:44	20:58	13h19m37s	-7°12'03"	47°10'16"	0.995	6.08267
9/ 3/2017	9:22	20:34	13h24m22s	-7°41'30"	41°40'49"	0.996	6.15771
9/10/2017	9:02	20:09	13h29m21s	-8°11'52"	36°13'34"	0.997	6.22483
9/17/2017	8:41	19:45	13h34m31s	-8°42'59"	30°47'43"	0.998	6.28349
9/24/2017	8:21	19:21	13h39m53s	-9°14'38"	25°22'50"	0.998	6.33310
10/ 1/2017	8:01	18:57	13h45m23s	-9°46'37"	19°58'40"	0.999	6.37318
10/ 8/2017	7:41	18:33	13h51m02s	-10°18'42"	14°34'53"	0.999	6.40340
10/15/2017	7:21	18:10	13h56m46s	-10°50'44"	9°11'16"	1.000	6.42354
10/22/2017	7:01	17:46	14h02m35s	-11°22'30"	3°50'13"	1.000	6.43327
10/29/2017	6:41	17:22	14h08m26s	-11°53'51"	2°01'23"	1.000	6.43242
11/ 5/2017	6:21	16:59	14h14m19s	-12°24'35"	7°17'48"	1.000	6.42099
11/12/2017	6:01	16:35	14h20m12s	-12°54'33"	12°46'32"	1.000	6.39904
11/19/2017	5:41	16:12	14h26m02s	-13°23'36"	18°18'51"	0.999	6.36661
11/26/2017	5:21	15:49	14h31m49s	-13°51'33"	23°54'12"	0.999	6.32386
12/ 3/2017	5:01	15:25	14h37m29s	-14°18'16"	29°32'34"	0.998	6.27116
12/10/2017	4:41	15:01	14h43m01s	-14°43'37"	35°14'20"	0.997	6.20895
12/17/2017	4:20	14:38	14h48m23s	-15°07'30"	41°00'00"	0.996	6.13763
12/24/2017	3:59	14:14	14h53m33s	-15°29'45"	46°49'49"	0.996	6.05777
12/31/2017	3:37	13:50	14h58m27s	-15°50'17"	52°43'53"	0.995	5.97015

Saturn

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2017	6:20	15:45	17h22m32s	-21°51'48"	19°29'25"	1.000	10.98956
1/ 8/2017	5:56	15:21	17h25m54s	-21°54'48"	25°49'51"	1.000	10.94439
1/15/2017	5:32	14:56	17h29m09s	-21°57'22"	32°11'51"	0.999	10.88763
1/22/2017	5:08	14:32	17h32m16s	-21°59'30"	38°35'42"	0.999	10.81991
1/29/2017	4:43	14:07	17h35m13s	-22°01'14"	45°01'36"	0.999	10.74193
2/ 5/2017	4:18	13:42	17h37m58s	-22°02'35"	51°29'31"	0.999	10.65466
2/12/2017	3:53	13:17	17h40m30s	-22°03'36"	57°59'28"	0.998	10.55924
2/19/2017	3:28	12:51	17h42m46s	-22°04'17"	64°31'47"	0.998	10.45682
2/26/2017	3:03	12:26	17h44m47s	-22°04'42"	71°06'50"	0.998	10.34861
3/ 5/2017	2:37	12:00	17h46m29s	-22°04'53"	77°44'37"	0.998	10.23604
3/12/2017	2:11	11:34	17h47m53s	-22°04'52"	84°25'03"	0.998	10.12066
3/19/2017	1:44	11:07	17h48m57s	-22°04'43"	91°08'25"	0.998	10.00399
3/26/2017	1:17	10:41	17h49m41s	-22°04'26"	97°55'04"	0.998	9.88754
4/ 2/2017	0:50	10:13	17h50m04s	-22°04'04"	104°44'58"	0.998	9.77299
4/ 9/2017	0:23	9:46	17h50m06s	-22°03'38"	111°37'52"	0.998	9.66207
4/16/2017	23:51	9:18	17h49m47s	-22°03'08"	118°33'48"	0.998	9.55633
4/23/2017	23:23	8:50	17h49m08s	-22°02'37"	125°32'57"	0.998	9.45731
4/30/2017	22:54	8:21	17h48m10s	-22°02'03"	132°35'09"	0.999	9.36657
5/ 7/2017	22:25	7:53	17h46m54s	-22°01'28"	139°39'49"	0.999	9.28561
5/14/2017	21:56	7:24	17h45m21s	-22°00'50"	146°46'36"	0.999	9.21565
5/21/2017	21:27	6:54	17h43m36s	-22°00'10"	153°55'20"	1.000	9.15776
5/28/2017	20:57	6:25	17h41m38s	-21°59'28"	161°05'25"	1.000	9.11295
6/ 4/2017	20:27	5:55	17h39m32s	-21°58'44"	168°15'25"	1.000	9.08202
6/11/2017	19:58	5:26	17h37m21s	-21°57'58"	175°20'05"	1.000	9.06540
6/18/2017	19:28	4:56	17h35m08s	-21°57'12"	176°56'42"	1.000	9.06329
6/25/2017	18:58	4:26	17h32m56s	-21°56'28"	169°58'48"	1.000	9.07580
7/ 2/2017	18:28	3:57	17h30m49s	-21°55'48"	162°51'00"	1.000	9.10272
7/ 9/2017	17:59	3:27	17h28m49s	-21°55'14"	155°43'54"	1.000	9.14350
7/16/2017	17:30	2:58	17h27m00s	-21°54'49"	148°38'40"	0.999	9.19741
7/23/2017	17:00	2:29	17h25m23s	-21°54'35"	141°35'46"	0.999	9.26361
7/30/2017	16:32	2:00	17h24m02s	-21°54'36"	134°35'50"	0.999	9.34107
8/ 6/2017	16:03	1:32	17h22m58s	-21°54'53"	127°39'23"	0.998	9.42843
8/13/2017	15:35	1:03	17h22m12s	-21°55'28"	120°46'26"	0.998	9.52433
8/20/2017	15:07	0:35	17h21m46s	-21°56'22"	113°56'49"	0.998	9.62741
8/27/2017	14:40	0:08	17h21m40s	-21°57'35"	107°10'41"	0.998	9.73615
9/ 3/2017	14:12	23:36	17h21m55s	-21°59'07"	100°28'14"	0.998	9.84890
9/10/2017	13:46	23:09	17h22m30s	-22°00'57"	93°49'16"	0.998	9.96407
9/17/2017	13:19	22:43	17h23m25s	-22°03'03"	87°13'19"	0.998	10.08020
9/24/2017	12:53	22:16	17h24m39s	-22°05'22"	80°40'13"	0.998	10.19574
10/ 1/2017	12:27	21:50	17h26m13s	-22°07'52"	74°09'59"	0.998	10.30909
10/ 8/2017	12:02	21:24	17h28m04s	-22°10'29"	67°42'23"	0.998	10.41881
10/15/2017	11:37	20:59	17h30m12s	-22°13'11"	61°16'51"	0.998	10.52362
10/22/2017	11:12	20:33	17h32m36s	-22°15'52"	54°53'03"	0.998	10.62221
10/29/2017	10:47	20:08	17h35m13s	-22°18'30"	48°30'59"	0.999	10.71330
11/ 5/2017	10:23	19:44	17h38m03s	-22°21'01"	42°10'26"	0.999	10.79580
11/12/2017	9:58	19:19	17h41m05s	-22°23'22"	35°50'57"	0.999	10.86881
11/19/2017	9:34	18:54	17h44m16s	-22°25'29"	29°32'09"	0.999	10.93144
11/26/2017	9:10	18:30	17h47m35s	-22°27'20"	23°14'01"	1.000	10.98286
12/ 3/2017	8:46	18:06	17h51m00s	-22°28'52"	16°56'36"	1.000	11.02247
12/10/2017	8:22	17:42	17h54m31s	-22°30'05"	10°39'48"	1.000	11.04990
12/17/2017	7:58	17:18	17h58m04s	-22°30'56"	4°25'14"	1.000	11.06477
12/24/2017	7:34	16:54	18h01m38s	-22°31'25"	2°10'41"	1.000	11.06680
12/31/2017	7:10	16:30	18h05m12s	-22°31'31"	8°20'12"	1.000	11.05600

Uranus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2017	12:27	1:27	1h16m53s	7°28'05"	99°47'41"	0.999	19.75141
1/ 8/2017	12:00	0:59	1h17m01s	7°29'10"	92°41'52"	0.999	19.87107
1/15/2017	11:33	0:32	1h17m18s	7°31'12"	85°38'54"	0.999	19.99136
1/22/2017	11:05	0:05	1h17m45s	7°34'09"	78°38'41"	0.999	20.11058
1/29/2017	10:38	23:35	1h18m21s	7°38'00"	71°41'16"	0.999	20.22700
2/ 5/2017	10:11	23:09	1h19m05s	7°42'42"	64°46'59"	0.999	20.33885
2/12/2017	9:44	22:42	1h19m57s	7°48'10"	57°55'58"	1.000	20.44457
2/19/2017	9:17	22:16	1h20m57s	7°54'22"	51°08'00"	1.000	20.54281
2/26/2017	8:51	21:50	1h22m04s	8°01'11"	44°22'54"	1.000	20.63226
3/ 5/2017	8:24	21:24	1h23m16s	8°08'34"	37°40'47"	1.000	20.71168
3/12/2017	7:57	20:58	1h24m34s	8°16'26"	31°01'42"	1.000	20.78007
3/19/2017	7:31	20:33	1h25m56s	8°24'39"	24°25'23"	1.000	20.83672
3/26/2017	7:04	20:07	1h27m22s	8°33'11"	17°51'28"	1.000	20.88094
4/ 2/2017	6:37	19:42	1h28m50s	8°41'55"	11°19'58"	1.000	20.91217
4/ 9/2017	6:11	19:16	1h30m19s	8°50'45"	4°51'31"	1.000	20.93010
4/16/2017	5:44	18:51	1h31m50s	8°59'36"	1°43'41"	1.000	20.93468
4/23/2017	5:18	18:25	1h33m20s	9°08'24"	8°05'31"	1.000	20.92590
4/30/2017	4:51	18:00	1h34m50s	9°17'02"	14°30'08"	1.000	20.90385
5/ 7/2017	4:25	17:34	1h36m17s	9°25'27"	20°54'01"	1.000	20.86889
5/14/2017	3:58	17:08	1h37m42s	9°33'33"	27°17'14"	1.000	20.82157
5/21/2017	3:31	16:43	1h39m03s	9°41'16"	33°40'21"	1.000	20.76248
5/28/2017	3:05	16:17	1h40m20s	9°48'31"	40°03'43"	1.000	20.69230
6/ 4/2017	2:38	15:51	1h41m32s	9°55'15"	46°27'26"	1.000	20.61193
6/11/2017	2:11	15:25	1h42m38s	10°01'24"	52°51'44"	1.000	20.52247
6/18/2017	1:44	14:59	1h43m38s	10°06'54"	59°17'13"	1.000	20.42498
6/25/2017	1:17	14:32	1h44m31s	10°11'42"	65°44'20"	0.999	20.32060
7/ 2/2017	0:50	14:06	1h45m15s	10°15'46"	72°13'11"	0.999	20.21069
7/ 9/2017	0:23	13:39	1h45m52s	10°19'03"	78°43'56"	0.999	20.09673
7/16/2017	23:52	13:12	1h46m20s	10°21'32"	85°17'02"	0.999	19.98012
7/23/2017	23:25	12:45	1h46m40s	10°23'10"	91°52'56"	0.999	19.86233
7/30/2017	22:57	12:17	1h46m50s	10°23'57"	98°31'44"	0.999	19.74498
8/ 6/2017	22:30	11:50	1h46m51s	10°23'54"	105°13'24"	0.999	19.62975
8/13/2017	22:02	11:22	1h46m43s	10°22'59"	111°58'10"	0.999	19.51819
8/20/2017	21:35	10:54	1h46m27s	10°21'15"	118°46'27"	1.000	19.41183
8/27/2017	21:07	10:26	1h46m01s	10°18'43"	125°38'11"	1.000	19.31230
9/ 3/2017	20:39	9:58	1h45m28s	10°15'27"	132°33'07"	1.000	19.22117
9/10/2017	20:11	9:29	1h44m46s	10°11'29"	139°31'15"	1.000	19.13979
9/17/2017	19:43	9:01	1h43m59s	10°06'54"	146°32'44"	1.000	19.06939
9/24/2017	19:15	8:32	1h43m05s	10°01'46"	153°37'25"	1.000	19.01122
10/ 1/2017	18:47	8:03	1h42m07s	9°56'14"	160°44'44"	1.000	18.96633
10/ 8/2017	18:18	7:34	1h41m05s	9°50'22"	167°54'17"	1.000	18.93542
10/15/2017	17:50	7:05	1h40m01s	9°44'18"	175°05'12"	1.000	18.91904
10/22/2017	17:22	6:36	1h38m56s	9°38'09"	177°33'46"	1.000	18.91763
10/29/2017	16:54	6:08	1h37m52s	9°32'03"	170°21'24"	1.000	18.93130
11/ 5/2017	16:25	5:39	1h36m49s	9°26'09"	163°05'16"	1.000	18.95984
11/12/2017	15:57	5:10	1h35m50s	9°20'34"	155°48'08"	1.000	19.00279
11/19/2017	15:29	4:41	1h34m55s	9°15'25"	148°30'31"	1.000	19.05958
11/26/2017	15:01	4:12	1h34m05s	9°10'50"	141°13'07"	1.000	19.12934
12/ 3/2017	14:33	3:44	1h33m22s	9°06'53"	133°56'34"	1.000	19.21086
12/10/2017	14:05	3:16	1h32m47s	9°03'42"	126°41'08"	1.000	19.30280
12/17/2017	13:37	2:48	1h32m20s	9°01'19"	119°26'57"	1.000	19.40378
12/24/2017	13:10	2:20	1h32m02s	8°59'49"	112°14'33"	0.999	19.51217
12/31/2017	12:42	1:52	1h31m53s	8°59'14"	105°04'29"	0.999	19.62618

Neptune

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2017	10:53	21:57	22h46m28s	-8°42'20"	58°59'07"	1.000	30.44656
1/ 8/2017	10:26	21:31	22h47m06s	-8°38'22"	52°01'23"	1.000	30.54666
1/15/2017	9:59	21:04	22h47m50s	-8°33'56"	45°05'13"	1.000	30.63783
1/22/2017	9:32	20:38	22h48m37s	-8°29'05"	38°10'29"	1.000	30.71885
1/29/2017	9:05	20:11	22h49m28s	-8°23'52"	31°17'08"	1.000	30.78857
2/ 5/2017	8:38	19:45	22h50m22s	-8°18'22"	24°25'30"	1.000	30.84597
2/12/2017	8:11	19:19	22h51m18s	-8°12'38"	17°35'47"	1.000	30.89035
2/19/2017	7:44	18:53	22h52m16s	-8°06'44"	10°48'03"	1.000	30.92123
2/26/2017	7:17	18:26	22h53m16s	-8°00'44"	4°04'16"	1.000	30.93818
3/ 5/2017	6:50	18:00	22h54m15s	-7°54'43"	2°54'23"	1.000	30.94098
3/12/2017	6:24	17:34	22h55m15s	-7°48'44"	9°33'05"	1.000	30.92972
3/19/2017	5:57	17:08	22h56m13s	-7°42'52"	16°14'49"	1.000	30.90469
3/26/2017	5:30	16:42	22h57m10s	-7°37'09"	22°56'05"	1.000	30.86624
4/ 2/2017	5:03	16:15	22h58m05s	-7°31'42"	29°36'31"	1.000	30.81488
4/ 9/2017	4:36	15:49	22h58m57s	-7°26'32"	36°15'56"	1.000	30.75144
4/16/2017	4:09	15:22	22h59m45s	-7°21'43"	42°54'33"	1.000	30.67687
4/23/2017	3:42	14:56	23h00m30s	-7°17'19"	49°32'47"	1.000	30.59214
4/30/2017	3:15	14:29	23h01m11s	-7°13'21"	56°10'46"	1.000	30.49837
5/ 7/2017	2:48	14:03	23h01m47s	-7°09'55"	62°48'26"	1.000	30.39692
5/14/2017	2:20	13:36	23h02m18s	-7°07'00"	69°25'59"	1.000	30.28922
5/21/2017	1:53	13:09	23h02m43s	-7°04'39"	76°03'53"	1.000	30.17664
5/28/2017	1:26	12:42	23h03m03s	-7°02'53"	82°42'23"	1.000	30.06067
6/ 4/2017	0:59	12:14	23h03m17s	-7°01'44"	89°21'24"	1.000	29.94296
6/11/2017	0:31	11:47	23h03m25s	-7°01'12"	96°01'03"	1.000	29.82516
6/18/2017	0:04	11:20	23h03m27s	-7°01'17"	102°41'44"	1.000	29.70879
6/25/2017	23:32	10:52	23h03m23s	-7°01'59"	109°23'46"	1.000	29.59543
7/ 2/2017	23:05	10:24	23h03m14s	-7°03'16"	116°07'03"	1.000	29.48676
7/ 9/2017	22:37	9:56	23h02m58s	-7°05'07"	122°51'32"	1.000	29.38433
7/16/2017	22:09	9:28	23h02m38s	-7°07'30"	129°37'31"	1.000	29.28951
7/23/2017	21:41	9:00	23h02m13s	-7°10'22"	136°25'17"	1.000	29.20366
7/30/2017	21:14	8:32	23h01m43s	-7°13'41"	143°14'42"	1.000	29.12815
8/ 6/2017	20:46	8:04	23h01m09s	-7°17'23"	150°05'33"	1.000	29.06411
8/13/2017	20:18	7:35	23h00m32s	-7°21'23"	156°57'54"	1.000	29.01245
8/20/2017	19:50	7:07	22h59m53s	-7°25'37"	163°51'53"	1.000	28.97397
8/27/2017	19:22	6:38	22h59m11s	-7°30'02"	170°46'48"	1.000	28.94941
9/ 3/2017	18:54	6:10	22h58m29s	-7°34'31"	177°35'44"	1.000	28.93920
9/10/2017	18:26	5:41	22h57m46s	-7°39'00"	175°08'27"	1.000	28.94347
9/17/2017	17:58	5:13	22h57m03s	-7°43'23"	168°11'25"	1.000	28.96223
9/24/2017	17:30	4:44	22h56m22s	-7°47'38"	161°10'38"	1.000	28.99537
10/ 1/2017	17:02	4:16	22h55m43s	-7°51'36"	154°08'29"	1.000	29.04244
10/ 8/2017	16:34	3:48	22h55m07s	-7°55'16"	147°05'29"	1.000	29.10268
10/15/2017	16:06	3:19	22h54m34s	-7°58'31"	140°01'36"	1.000	29.17526
10/22/2017	15:38	2:51	22h54m06s	-8°01'20"	132°56'59"	1.000	29.25920
10/29/2017	15:11	2:23	22h53m42s	-8°03'37"	125°52'06"	1.000	29.35324
11/ 5/2017	14:43	1:55	22h53m24s	-8°05'21"	118°47'16"	1.000	29.45587
11/12/2017	14:15	1:28	22h53m11s	-8°06'29"	111°42'25"	1.000	29.56560
11/19/2017	13:48	1:00	22h53m04s	-8°07'00"	104°37'37"	1.000	29.68085
11/26/2017	13:20	0:32	22h53m04s	-8°06'52"	97°33'14"	1.000	29.79985
12/ 3/2017	12:53	0:05	22h53m10s	-8°06'05"	90°29'39"	1.000	29.92073
12/10/2017	12:25	23:34	22h53m22s	-8°04'40"	83°26'51"	1.000	30.04173
12/17/2017	11:58	23:07	22h53m41s	-8°02'37"	76°24'48"	1.000	30.16113
12/24/2017	11:31	22:40	22h54m05s	-7°59'57"	69°23'46"	1.000	30.27708
12/31/2017	11:04	22:13	22h54m36s	-7°56'42"	62°24'08"	1.000	30.38783

Pluto

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2017	8:08	17:37	19h12m55s	-21°21'04"	6°16'01"	1.000	34.22062
1/ 8/2017	7:41	17:11	19h13m57s	-21°19'55"	1°13'50"	1.000	34.23087
1/15/2017	7:15	16:44	19h14m59s	-21°18'44"	7°39'54"	1.000	34.22676
1/22/2017	6:48	16:18	19h15m59s	-21°17'31"	14°31'20"	1.000	34.20846
1/29/2017	6:21	15:51	19h16m59s	-21°16'18"	21°23'56"	1.000	34.17620
2/ 5/2017	5:55	15:25	19h17m56s	-21°15'06"	28°16'34"	1.000	34.13051
2/12/2017	5:28	14:58	19h18m50s	-21°13'57"	35°08'51"	1.000	34.07222
2/19/2017	5:01	14:32	19h19m41s	-21°12'53"	42°00'56"	1.000	34.00224
2/26/2017	4:34	14:05	19h20m28s	-21°11'55"	48°52'56"	1.000	33.92156
3/ 5/2017	4:08	13:38	19h21m10s	-21°11'04"	55°44'39"	1.000	33.83142
3/12/2017	3:41	13:11	19h21m47s	-21°10'21"	62°35'52"	1.000	33.73328
3/19/2017	3:14	12:44	19h22m18s	-21°09'48"	69°26'46"	1.000	33.62859
3/26/2017	2:46	12:17	19h22m44s	-21°09'26"	76°17'36"	1.000	33.51884
4/ 2/2017	2:19	11:50	19h23m04s	-21°09'15"	83°08'15"	1.000	33.40566
4/ 9/2017	1:52	11:23	19h23m18s	-21°09'17"	89°58'31"	1.000	33.29084
4/16/2017	1:25	10:55	19h23m25s	-21°09'31"	96°48'30"	1.000	33.17605
4/23/2017	0:57	10:28	19h23m26s	-21°09'58"	103°38'32"	1.000	33.06289
4/30/2017	0:29	10:00	19h23m21s	-21°10'38"	110°28'36"	1.000	32.95308
5/ 7/2017	0:02	9:32	19h23m11s	-21°11'30"	117°18'29"	1.000	32.84831
5/14/2017	23:30	9:04	19h22m54s	-21°12'35"	124°08'12"	1.000	32.75011
5/21/2017	23:02	8:36	19h22m32s	-21°13'51"	130°58'04"	1.000	32.65986
5/28/2017	22:34	8:08	19h22m05s	-21°15'17"	137°48'08"	1.000	32.57895
6/ 4/2017	22:06	7:40	19h21m34s	-21°16'53"	144°38'12"	1.000	32.50866
6/11/2017	21:38	7:12	19h20m59s	-21°18'37"	151°28'08"	1.000	32.45003
6/18/2017	21:10	6:44	19h20m20s	-21°20'29"	158°18'10"	1.000	32.40387
6/25/2017	20:42	6:15	19h19m40s	-21°22'25"	165°08'22"	1.000	32.37098
7/ 2/2017	20:14	5:47	19h18m57s	-21°24'25"	171°58'02"	1.000	32.35195
7/ 9/2017	19:46	5:19	19h18m14s	-21°26'28"	178°36'58"	1.000	32.34708
7/16/2017	19:18	4:50	19h17m30s	-21°28'32"	174°15'20"	1.000	32.35643
7/23/2017	18:50	4:22	19h16m47s	-21°30'34"	167°25'56"	1.000	32.38001
7/30/2017	18:22	3:53	19h16m06s	-21°32'35"	160°35'11"	1.000	32.41761
8/ 6/2017	17:54	3:25	19h15m26s	-21°34'32"	153°44'16"	1.000	32.46870
8/13/2017	17:26	2:57	19h14m50s	-21°36'24"	146°53'11"	1.000	32.53257
8/20/2017	16:58	2:29	19h14m17s	-21°38'09"	140°01'45"	1.000	32.60843
8/27/2017	16:30	2:01	19h13m49s	-21°39'48"	133°10'04"	1.000	32.69534
9/ 3/2017	16:02	1:33	19h13m25s	-21°41'17"	126°18'25"	1.000	32.79202
9/10/2017	15:35	1:05	19h13m06s	-21°42'39"	119°26'45"	1.000	32.89713
9/17/2017	15:07	0:37	19h12m53s	-21°43'50"	112°34'47"	1.000	33.00932
9/24/2017	14:39	0:09	19h12m46s	-21°44'51"	105°42'30"	1.000	33.12706
10/ 1/2017	14:12	23:38	19h12m46s	-21°45'40"	98°50'11"	1.000	33.24868
10/ 8/2017	13:45	23:10	19h12m51s	-21°46'19"	91°57'52"	1.000	33.37243
10/15/2017	13:17	22:43	19h13m03s	-21°46'46"	85°05'14"	1.000	33.49672
10/22/2017	12:50	22:16	19h13m21s	-21°47'02"	78°12'15"	1.000	33.61983
10/29/2017	12:23	21:48	19h13m45s	-21°47'06"	71°19'08"	1.000	33.73999
11/ 5/2017	11:56	21:21	19h14m15s	-21°46'59"	64°26'01"	1.000	33.85548
11/12/2017	11:29	20:55	19h14m51s	-21°46'42"	57°32'41"	1.000	33.96482
11/19/2017	11:02	20:28	19h15m32s	-21°46'13"	50°38'59"	1.000	34.06648
11/26/2017	10:35	20:01	19h16m17s	-21°45'35"	43°45'09"	1.000	34.15899
12/ 3/2017	10:09	19:34	19h17m07s	-21°44'47"	36°51'24"	1.000	34.24104
12/10/2017	9:42	19:08	19h18m00s	-21°43'51"	29°57'36"	1.000	34.31163
12/17/2017	9:15	18:41	19h18m56s	-21°42'47"	23°03'36"	1.000	34.36979
12/24/2017	8:49	18:15	19h19m55s	-21°41'37"	16°09'36"	1.000	34.41464
12/31/2017	8:22	17:48	19h20m55s	-21°40'22"	9°16'00"	1.000	34.44562

Planet Apsides Report for 2017

Earth

1/ 3/2017	Perihelion	Distance from Sun:	0.98 AU
7/ 4/2017	Aphelion	Distance from Sun:	1.02 AU

Mercury

3/23/2017	Perihelion	Distance from Sun:	0.31 AU
6/19/2017	Perihelion	Distance from Sun:	0.31 AU
9/15/2017	Perihelion	Distance from Sun:	0.31 AU
12/12/2017	Perihelion	Distance from Sun:	0.31 AU
2/ 7/2017	Aphelion	Distance from Sun:	0.47 AU
5/ 6/2017	Aphelion	Distance from Sun:	0.47 AU
8/ 2/2017	Aphelion	Distance from Sun:	0.47 AU
10/29/2017	Aphelion	Distance from Sun:	0.47 AU

Venus

2/20/2017	Perihelion	Distance from Sun:	0.72 AU
10/ 3/2017	Perihelion	Distance from Sun:	0.72 AU
6/12/2017	Aphelion	Distance from Sun:	0.73 AU

Mars

10/ 7/2017	Aphelion	Distance from Sun:	1.67 AU

Jupiter

2/18/2017	Aphelion	Distance from Sun:	5.46 AU

Saturn

No Apsis

Planet Conjunction/Opposition Report for 1/ 1/2017 to 12/31/2017

Mercury

Date	Hour	Event
3/ 6/2017	17	Superior Conjunction
4/19/2017	23	Inferior Conjunction
6/21/2017	17	Superior Conjunction
8/26/2017	17	Inferior Conjunction
10/ 8/2017	17	Superior Conjunction
12/12/2017	19	Inferior Conjunction

Venus

Date	Hour	Event
3/25/2017	3	Inferior Conjunction

Mars

Date	Hour	Event
7/26/2017	18	Conjunction

Jupiter

Date	Hour	Event

10/26/2017	17	Conjunction
4/ 7/2017	17	Opposition

Saturn

Date	Hour	Event
12/21/2017	17	Conjunction
6/15/2017	1	Opposition

Uranus

Date	Hour	Event
4/13/2017	22	Conjunction
10/19/2017	17	Opposition

Neptune

Date	Hour	Event
3/ 1/2017	20	Conjunction
9/ 4/2017	23	Opposition

Pluto

Date	Hour	Event
1/ 7/2017	0	Conjunction
7/ 9/2017	22	Opposition

Planet Data Report

Planet	Mean Dist From Sun (AU)	Period of Revolution		Inclination	Equatorial Diameter (km)
Mercury	0.39	88	days	7°	4880
Venus	0.72	224.7	days	3.4°	12100
Earth	1.00	365.24	days	0°	12756
Mars	1.52	687	days	1.9°	6794
Jupiter	5.20	11.86	years	1.3°	143200
Saturn	9.54	29.46	years	2.5°	120000
Uranus	19.18	84	years	0.8°	52290
Neptune	30.06	165	years	1.8°	50450
Pluto	39.44	248	years	17.2°	2200-2300

Moon Apsides Report for 1/ 1/2017 to 12/31/2017

Date	Hour	Apsis	Distance (km)	Diameter
1/ 9/2017	23	Perigee	363234	0.5483°
1/21/2017	17	Apogee	404922	0.4918°
2/ 6/2017	7	Perigee	368807	0.5400°
2/18/2017	14	Apogee	404385	0.4925°
3/ 3/2017	0	Perigee	369065	0.5396°
3/18/2017	10	Apogee	404646	0.4922°
3/30/2017	6	Perigee	363862	0.5473°
4/15/2017	3	Apogee	405487	0.4912°
4/27/2017	9	Perigee	359341	0.5542°
5/12/2017	13	Apogee	406216	0.4903°
5/25/2017	18	Perigee	357226	0.5575°
6/ 8/2017	15	Apogee	406371	0.4901°
6/23/2017	4	Perigee	357955	0.5564°
7/ 5/2017	21	Apogee	405943	0.4906°
7/21/2017	10	Perigee	361245	0.5513°
8/ 2/2017	11	Apogee	405053	0.4917°
8/18/2017	6	Perigee	366119	0.5440°
8/30/2017	4	Apogee	404312	0.4926°
9/13/2017	9	Perigee	369858	0.5385°
9/27/2017	0	Apogee	404350	0.4925°
10/ 8/2017	23	Perigee	366854	0.5429°
10/24/2017	19	Apogee	405164	0.4915°
11/ 5/2017	17	Perigee	361431	0.5510°
11/21/2017	12	Apogee	406132	0.4904°
12/ 4/2017	2	Perigee	357504	0.5571°
12/18/2017	18	Apogee	406601	0.4898°

Moon Nodes Report for 1/ 1/2017 to 12/31/2017

Date	Time	Node	Illuminated Fraction
1/ 2/2017	11:13	Descending	0.17
1/15/2017	3:44	Ascending	0.91
1/29/2017	15:20	Descending	0.03
2/11/2017	12:48	Ascending	1.00
2/25/2017	23:27	Descending	0.00
3/10/2017	21:16	Ascending	0.97
3/25/2017	8:40	Descending	0.09
4/ 7/2017	2:13	Ascending	0.83
4/21/2017	15:29	Descending	0.28
5/ 4/2017	3:41	Ascending	0.61
5/18/2017	18:29	Descending	0.53
5/31/2017	4:55	Ascending	0.36
6/14/2017	19:39	Descending	0.76
6/27/2017	9:25	Ascending	0.15
7/11/2017	22:16	Descending	0.93
7/24/2017	17:46	Ascending	0.02
8/ 8/2017	3:55	Descending	1.00
8/21/2017	3:33	Ascending	0.01
9/ 4/2017	11:40	Descending	0.97
9/17/2017	11:27	Ascending	0.09
10/ 1/2017	19:04	Descending	0.83
10/14/2017	15:09	Ascending	0.27
10/28/2017	23:40	Descending	0.60

11/10/2017	15:39	Ascending	0.52
11/25/2017	1:21	Descending	0.34
12/ 7/2017	17:38	Ascending	0.77
12/22/2017	3:03	Descending	0.13

Meteor Showers Report for 1/ 1/2017 to 12/31/2017

Date	Meteor Shower	ZHR	RA	DEC	Illum. Frac.	Longitude
1/ 3/2017	Quadrantids	80	15h28m	50°	0.28	284°
4/11/2017	Virginids	5	14h04m	-9°	1.00	22°
4/21/2017	Lyrids	12	18h08m	32°	0.28	32°
4/27/2017	alpha-Scorpiids	5	16h32m	-24°	0.02	38°
5/ 5/2017	eta-Aquarids	35	22h20m	-1°	0.76	45°
5/12/2017	alpha-Scorpiids	5	16h04m	-24°	0.97	52°
6/ 9/2017	Ophiuchids	5	17h56m	-23°	1.00	79°
6/19/2017	Ophiuchids	5	17h20m	-20°	0.26	89°
7/ 7/2017	Capricornids	5			0.98	106°
7/15/2017	Capricornids	5	20h44m	-15°	0.62	113°
7/20/2017	alpha-Cygnids	5	21h00m	48°	0.11	118°
7/25/2017	Capricornids	5	21h00m	-15°	0.07	123°
7/28/2017	delta-Aquarids	20	22h36m	-17°	0.31	126°
7/30/2017	Piscis Australids	5	22h40m	-30°	0.51	128°
8/ 1/2017	alpha-Capricornids	5	20h36m	-10°	0.69	130°
8/ 6/2017	iota-Aquarids	8	22h10m	-15°	0.99	134°
8/12/2017	Perseids	75	3h04m	58°	0.75	140°
8/20/2017	alpha-Cygnids	5	21h00m	48°	0.02	148°
9/ 8/2017	Piscids	10	0h36m	7°	0.93	166°
9/20/2017	Piscids	5	0h24m	0°	0.00	178°
10/12/2017	Piscids	??	1h44m	14°	0.48	200°
10/21/2017	Orionids	25	6h24m	15°	0.04	209°
11/ 2/2017	Taurids	8	3h44m	14°	0.97	221°
11/17/2017	Leonids	10	10h08m	22°	0.01	236°
12/ 8/2017	Puppids-Velids	15	9h00m	-48°	0.67	257°
12/13/2017	Geminids	75	7h28m	32°	0.18	262°
12/22/2017	Ursids	5	14h28m	78°	0.17	271°
12/25/2017	Puppids-Velids	15	9h20m	-65°	0.43	274°

Twilight Report for 1/ 1/2017 to 12/31/2017

Date	Sun		Astronomical		Nautical		Civil	
	Rise	Set	Begin	End	Begin	End	Begin	End
1/ 1/2017	7:49	17:10	6:07	18:53	6:40	18:20	7:14	17:46
1/ 8/2017	7:49	17:17	6:07	18:59	6:40	18:26	7:14	17:52
1/15/2017	7:47	17:24	6:06	19:05	6:39	18:33	7:12	17:59
1/22/2017	7:43	17:32	6:04	19:12	6:36	18:40	7:09	18:07
1/29/2017	7:38	17:41	5:59	19:19	6:31	18:47	7:04	18:15
2/ 5/2017	7:31	17:49	5:54	19:27	6:26	18:55	6:58	18:23
2/12/2017	7:23	17:58	5:47	19:34	6:18	19:03	6:50	18:31
2/19/2017	7:14	18:06	5:38	19:42	6:10	19:10	6:41	18:38
2/26/2017	7:04	18:14	5:29	19:49	6:00	19:18	6:32	18:46
3/ 5/2017	6:53	18:22	5:18	19:57	5:50	19:25	6:21	18:54
3/12/2017	6:42	18:30	5:07	20:05	5:39	19:33	6:10	19:01
3/19/2017	6:30	18:37	4:55	20:13	5:27	19:41	5:59	19:09
3/26/2017	6:19	18:45	4:42	20:21	5:15	19:48	5:47	19:16
4/ 2/2017	6:07	18:52	4:29	20:30	5:03	19:56	5:36	19:24
4/ 9/2017	5:56	18:59	4:16	20:39	4:51	20:05	5:24	19:32

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2017

4/16/2017	5:45	19:06	4:03	20:49	4:39	20:13	5:13	19:39
4/23/2017	5:35	19:14	3:50	20:59	4:27	20:22	5:02	19:47
4/30/2017	5:26	19:21	3:37	21:10	4:16	20:31	4:52	19:55
5/ 7/2017	5:17	19:28	3:25	21:21	4:05	20:40	4:42	20:03
5/14/2017	5:10	19:35	3:14	21:31	3:56	20:49	4:34	20:11
5/21/2017	5:04	19:42	3:04	21:42	3:48	20:57	4:28	20:18
5/28/2017	4:59	19:48	2:56	21:51	3:42	21:05	4:22	20:25
6/ 4/2017	4:56	19:53	2:49	22:00	3:37	21:12	4:19	20:30
6/11/2017	4:55	19:57	2:46	22:06	3:35	21:17	4:17	20:35
6/18/2017	4:55	19:59	2:45	22:10	3:35	21:20	4:17	20:38
6/25/2017	4:57	20:00	2:47	22:11	3:36	21:21	4:18	20:39
7/ 2/2017	5:00	20:00	2:51	22:09	3:40	21:20	4:22	20:38
7/ 9/2017	5:04	19:58	2:58	22:04	3:45	21:17	4:27	20:36
7/16/2017	5:09	19:54	3:06	21:57	3:52	21:12	4:32	20:31
7/23/2017	5:15	19:49	3:16	21:48	4:00	21:05	4:39	20:25
7/30/2017	5:22	19:43	3:26	21:38	4:08	20:56	4:46	20:18
8/ 6/2017	5:28	19:35	3:37	21:26	4:17	20:46	4:53	20:09
8/13/2017	5:35	19:26	3:47	21:14	4:25	20:35	5:01	20:00
8/20/2017	5:42	19:16	3:57	21:01	4:34	20:24	5:09	19:49
8/27/2017	5:49	19:05	4:07	20:47	4:42	20:12	5:16	19:38
9/ 3/2017	5:55	18:54	4:16	20:34	4:50	19:59	5:23	19:26
9/10/2017	6:02	18:43	4:24	20:20	4:58	19:47	5:30	19:14
9/17/2017	6:09	18:31	4:32	20:07	5:05	19:35	5:37	19:02
9/24/2017	6:16	18:19	4:40	19:55	5:13	19:22	5:44	18:51
10/ 1/2017	6:23	18:07	4:48	19:42	5:20	19:11	5:51	18:39
10/ 8/2017	6:30	17:56	4:55	19:31	5:27	18:59	5:58	18:28
10/15/2017	6:37	17:45	5:02	19:20	5:34	18:49	6:05	18:17
10/22/2017	6:45	17:35	5:09	19:11	5:41	18:39	6:13	18:07
10/29/2017	6:53	17:26	5:17	19:02	5:48	18:31	6:20	17:59
11/ 5/2017	7:01	17:18	5:24	18:55	5:55	18:23	6:28	17:51
11/12/2017	7:09	17:11	5:31	18:49	6:03	18:17	6:35	17:44
11/19/2017	7:17	17:05	5:38	18:45	6:10	18:13	6:43	17:40
11/26/2017	7:25	17:01	5:44	18:42	6:17	18:10	6:50	17:36
12/ 3/2017	7:32	16:59	5:50	18:41	6:23	18:08	6:57	17:35
12/10/2017	7:39	16:59	5:56	18:42	6:29	18:09	7:03	17:35
12/17/2017	7:44	17:01	6:00	18:44	6:34	18:11	7:08	17:37
12/24/2017	7:47	17:04	6:04	18:48	6:37	18:14	7:11	17:40
12/31/2017	7:49	17:09	6:06	18:52	6:39	18:19	7:14	17:45