

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 2023
 Page 2

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

Calendar Report for 1/ 1/2023 to 12/31/2023

January 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 SR: 7:49 SS: 17:10 MR: 13:31 MS: 2:59	2 SR: 7:49 SS: 17:11 MR: 14:00 MS: 4:05	3 SR: 7:49 SS: 17:12 MR: 14:33 MS: 5:09	4 SR: 7:50 SS: 17:12 MR: 15:13 MS: 6:12	5 SR: 7:50 SS: 17:13 MR: 16:00 MS: 7:10	6 SR: 7:49 SS: 17:14 MR: 16:54 MS: 8:02 FM: 16:10	7 SR: 7:49 SS: 17:15 MR: 17:52 MS: 8:46
8 SR: 7:49 SS: 17:16 MR: 18:54 MS: 9:23	9 SR: 7:49 SS: 17:17 MR: 19:56 MS: 9:54	10 SR: 7:49 SS: 17:18 MR: 20:57 MS: 10:20	11 SR: 7:49 SS: 17:19 MR: 21:59 MS: 10:43	12 SR: 7:48 SS: 17:20 MR: 23:00 MS: 11:04	13 SR: 7:48 SS: 17:21 MR: None MS: 11:25	14 SR: 7:48 SS: 17:23 MR: 0:02 MS: 11:46 LQ: 19:13
15 SR: 7:47 SS: 17:24 MR: 1:07 MS: 12:10	16 SR: 7:47 SS: 17:25 MR: 2:16 MS: 12:37	17 SR: 7:46 SS: 17:26 MR: 3:28 MS: 13:12	18 SR: 7:46 SS: 17:27 MR: 4:44 MS: 13:55	19 SR: 7:45 SS: 17:28 MR: 5:59 MS: 14:51	20 SR: 7:45 SS: 17:29 MR: 7:07 MS: 16:01	21 SR: 7:44 SS: 17:31 MR: 8:04 MS: 17:20 NM: 13:56
22 SR: 7:44 SS: 17:32 MR: 8:50 MS: 18:42	23 SR: 7:43 SS: 17:33 MR: 9:26 MS: 20:03	24 SR: 7:42 SS: 17:34 MR: 9:55 MS: 21:19	25 SR: 7:42 SS: 17:35 MR: 10:21 MS: 22:32	26 SR: 7:41 SS: 17:37 MR: 10:45 MS: 23:42	27 SR: 7:40 SS: 17:38 MR: 11:09 MS: None	28 SR: 7:39 SS: 17:39 MR: 11:34 MS: 0:50 FQ: 8:20
29 SR: 7:38 SS: 17:40 MR: 12:01 MS: 1:56	30 SR: 7:37 SS: 17:41 MR: 12:34 MS: 3:02	31 SR: 7:36 SS: 17:43 MR: 13:11 MS: 4:06				

February 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 SR: 7:36 SS: 17:44 MR: 13:56 MS: 5:05	2 SR: 7:35 SS: 17:45 MR: 14:48 MS: 5:59	3 SR: 7:34 SS: 17:46 MR: 15:45 MS: 6:45	4 SR: 7:33 SS: 17:48 MR: 16:46 MS: 7:24
5 SR: 7:31 SS: 17:49 MR: 17:48 MS: 7:56 FM: 11:31	6 SR: 7:30 SS: 17:50 MR: 18:50 MS: 8:24	7 SR: 7:29 SS: 17:51 MR: 19:52 MS: 8:47	8 SR: 7:28 SS: 17:52 MR: 20:53 MS: 9:09	9 SR: 7:27 SS: 17:54 MR: 21:55 MS: 9:30	10 SR: 7:26 SS: 17:55 MR: 22:58 MS: 9:50	11 SR: 7:25 SS: 17:56 MR: None MS: 10:13
12 SR: 7:23 SS: 17:57 MR: 0:04 MS: 10:38	13 SR: 7:22 SS: 17:59 MR: 1:13 MS: 11:08 LQ: 9:03	14 SR: 7:21 SS: 18:00 MR: 2:25 MS: 11:46	15 SR: 7:20 SS: 18:01 MR: 3:38 MS: 12:34	16 SR: 7:18 SS: 18:02 MR: 4:47 MS: 13:35	17 SR: 7:17 SS: 18:03 MR: 5:48 MS: 14:48	18 SR: 7:16 SS: 18:05 MR: 6:38 MS: 16:09
19 SR: 7:14 SS: 18:06 MR: 7:18 MS: 17:31	20 SR: 7:13 SS: 18:07 MR: 7:51 MS: 18:51 NM: 0:09	21 SR: 7:12 SS: 18:08 MR: 8:19 MS: 20:07	22 SR: 7:10 SS: 18:09 MR: 8:44 MS: 21:21	23 SR: 7:09 SS: 18:10 MR: 9:09 MS: 22:32	24 SR: 7:07 SS: 18:12 MR: 9:34 MS: 23:42	25 SR: 7:06 SS: 18:13 MR: 10:01 MS: None
26 SR: 7:04 SS: 18:14 MR: 10:32 MS: 0:50	27 SR: 7:03 SS: 18:15 MR: 11:08 MS: 1:56 FQ: 1:07	28 SR: 7:01 SS: 18:16 MR: 11:51 MS: 2:59				

March 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 SR: 7:00 SS: 18:17 MR: 12:41 MS: 3:55	2 SR: 6:58 SS: 18:18 MR: 13:37 MS: 4:43	3 SR: 6:57 SS: 18:19 MR: 14:37 MS: 5:24	4 SR: 6:55 SS: 18:21 MR: 15:39 MS: 5:59
5 SR: 6:54 SS: 18:22 MR: 16:42 MS: 6:27	6 SR: 6:52 SS: 18:23 MR: 17:44 MS: 6:52	7 SR: 6:51 SS: 18:24 MR: 18:46 MS: 7:14 FM: 5:43	8 SR: 6:49 SS: 18:25 MR: 19:48 MS: 7:35	9 SR: 6:47 SS: 18:26 MR: 20:51 MS: 7:56	10 SR: 6:46 SS: 18:27 MR: 21:57 MS: 8:17	11 SR: 6:44 SS: 18:28 MR: 23:05 MS: 8:41
12 SR: 6:43 SS: 18:29 MR: None MS: 9:09	13 SR: 6:41 SS: 18:30 MR: 0:16 MS: 9:44	14 SR: 6:39 SS: 18:32 MR: 1:27 MS: 10:27 LQ: 19:10	15 SR: 6:38 SS: 18:33 MR: 2:36 MS: 11:22	16 SR: 6:36 SS: 18:34 MR: 3:38 MS: 12:28	17 SR: 6:34 SS: 18:35 MR: 4:30 MS: 13:44	18 SR: 6:33 SS: 18:36 MR: 5:13 MS: 15:03
19 SR: 6:31 SS: 18:37 MR: 5:48 MS: 16:22	20 SR: 6:29 SS: 18:38 MR: 6:17 MS: 17:39 MEQ:14:22	21 SR: 6:28 SS: 18:39 MR: 6:43 MS: 18:54 NM: 10:27	22 SR: 6:26 SS: 18:40 MR: 7:07 MS: 20:08	23 SR: 6:25 SS: 18:41 MR: 7:32 MS: 21:20	24 SR: 6:23 SS: 18:42 MR: 7:59 MS: 22:31	25 SR: 6:21 SS: 18:43 MR: 8:28 MS: 23:41
26 SR: 6:20 SS: 18:44 MR: 9:03 MS: None	27 SR: 6:18 SS: 18:45 MR: 9:44 MS: 0:46	28 SR: 6:16 SS: 18:46 MR: 10:32 MS: 1:47 FQ: 19:33	29 SR: 6:15 SS: 18:47 MR: 11:26 MS: 2:39	30 SR: 6:13 SS: 18:48 MR: 12:26 MS: 3:23	31 SR: 6:11 SS: 18:49 MR: 13:27 MS: 4:00	

April 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 SR: 6:10 SS: 18:50 MR: 14:30 MS: 4:30
2 SR: 6:08 SS: 18:52 MR: 15:33 MS: 4:56	3 SR: 6:07 SS: 18:53 MR: 16:35 MS: 5:19	4 SR: 6:05 SS: 18:54 MR: 17:37 MS: 5:40	5 SR: 6:03 SS: 18:55 MR: 18:41 MS: 6:00 FM: 21:37	6 SR: 6:02 SS: 18:56 MR: 19:47 MS: 6:22	7 SR: 6:00 SS: 18:57 MR: 20:55 MS: 6:45	8 SR: 5:58 SS: 18:58 MR: 22:06 MS: 7:12
9 SR: 5:57 SS: 18:59 MR: 23:19 MS: 7:45	10 SR: 5:55 SS: 19:00 MR: None MS: 8:25	11 SR: 5:54 SS: 19:01 MR: 0:29 MS: 9:16	12 SR: 5:52 SS: 19:02 MR: 1:33 MS: 10:19	13 SR: 5:51 SS: 19:03 MR: 2:28 MS: 11:30 LQ: 2:13	14 SR: 5:49 SS: 19:04 MR: 3:12 MS: 12:46	15 SR: 5:48 SS: 19:05 MR: 3:48 MS: 14:03
16 SR: 5:46 SS: 19:06 MR: 4:18 MS: 15:19	17 SR: 5:45 SS: 19:07 MR: 4:44 MS: 16:33	18 SR: 5:43 SS: 19:08 MR: 5:08 MS: 17:45	19 SR: 5:42 SS: 19:09 MR: 5:32 MS: 18:57 NM: 21:16 SE: 21:24	20 SR: 5:40 SS: 19:10 MR: 5:57 MS: 20:09	21 SR: 5:39 SS: 19:11 MR: 6:25 MS: 21:20	22 SR: 5:37 SS: 19:12 MR: 6:58 MS: 22:29
23 SR: 5:36 SS: 19:13 MR: 7:37 MS: 23:33	24 SR: 5:34 SS: 19:14 MR: 8:22 MS: None	25 SR: 5:33 SS: 19:15 MR: 9:15 MS: 0:30	26 SR: 5:32 SS: 19:16 MR: 10:13 MS: 1:18	27 SR: 5:30 SS: 19:17 MR: 11:14 MS: 1:58 FQ: 14:21	28 SR: 5:29 SS: 19:19 MR: 12:17 MS: 2:31	29 SR: 5:28 SS: 19:20 MR: 13:19 MS: 2:58
30 SR: 5:26 SS: 19:21 MR: 14:21 MS: 3:22						

May 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1 SR: 5:25 SS: 19:22 MR: 15:23 MS: 3:43	2 SR: 5:24 SS: 19:23 MR: 16:26 MS: 4:04	3 SR: 5:23 SS: 19:24 MR: 17:31 MS: 4:25	4 SR: 5:21 SS: 19:25 MR: 18:39 MS: 4:47	5 SR: 5:20 SS: 19:26 MR: 19:51 MS: 5:13 FM: 10:37	6 SR: 5:19 SS: 19:27 MR: 21:05 MS: 5:44
7 SR: 5:18 SS: 19:28 MR: 22:18 MS: 6:22	8 SR: 5:17 SS: 19:29 MR: 23:26 MS: 7:11	9 SR: 5:16 SS: 19:30 MR: None MS: 8:11	10 SR: 5:15 SS: 19:31 MR: 0:25 MS: 9:20	11 SR: 5:13 SS: 19:32 MR: 1:12 MS: 10:36	12 SR: 5:12 SS: 19:33 MR: 1:50 MS: 11:52 LQ: 7:29	13 SR: 5:11 SS: 19:34 MR: 2:21 MS: 13:07
14 SR: 5:10 SS: 19:35 MR: 2:48 MS: 14:20	15 SR: 5:09 SS: 19:36 MR: 3:12 MS: 15:31	16 SR: 5:09 SS: 19:37 MR: 3:35 MS: 16:41	17 SR: 5:08 SS: 19:38 MR: 3:59 MS: 17:51	18 SR: 5:07 SS: 19:39 MR: 4:25 MS: 19:02	19 SR: 5:06 SS: 19:39 MR: 4:55 MS: 20:11 NM: 8:56	20 SR: 5:05 SS: 19:40 MR: 5:31 MS: 21:18
21 SR: 5:04 SS: 19:41 MR: 6:14 MS: 22:19	22 SR: 5:04 SS: 19:42 MR: 7:04 MS: 23:11	23 SR: 5:03 SS: 19:43 MR: 8:01 MS: 23:54	24 SR: 5:02 SS: 19:44 MR: 9:01 MS: None	25 SR: 5:01 SS: 19:45 MR: 10:04 MS: 0:30	26 SR: 5:01 SS: 19:46 MR: 11:06 MS: 0:59	27 SR: 5:00 SS: 19:46 MR: 12:08 MS: 1:24 FQ: 8:24
28 SR: 5:00 SS: 19:47 MR: 13:09 MS: 1:46	29 SR: 4:59 SS: 19:48 MR: 14:11 MS: 2:07	30 SR: 4:59 SS: 19:49 MR: 15:14 MS: 2:27	31 SR: 4:58 SS: 19:50 MR: 16:20 MS: 2:49			

June 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
				SR: 4:58	SR: 4:57	SR: 4:57
				SS: 19:50	SS: 19:51	SS: 19:52
				MR: 17:30	MR: 18:43	MR: 19:58
				MS: 3:12	MS: 3:41	MS: 4:16
						FM: 20:44
4	5	6	7	8	9	10
SR: 4:57	SR: 4:56	SR: 4:56	SR: 4:56	SR: 4:55	SR: 4:55	SR: 4:55
SS: 19:52	SS: 19:53	SS: 19:54	SS: 19:54	SS: 19:55	SS: 19:55	SS: 19:56
MR: 21:11	MR: 22:15	MR: 23:09	MR: 23:51	MR: None	MR: 0:24	MR: 0:52
MS: 5:01	MS: 5:58	MS: 7:06	MS: 8:23	MS: 9:41	MS: 10:58	MS: 12:11
						LQ: 12:32
11	12	13	14	15	16	17
SR: 4:55	SR: 4:55	SR: 4:55	SR: 4:55	SR: 4:55	SR: 4:55	SR: 4:55
SS: 19:56	SS: 19:57	SS: 19:57	SS: 19:58	SS: 19:58	SS: 19:59	SS: 19:59
MR: 1:17	MR: 1:40	MR: 2:03	MR: 2:28	MR: 2:56	MR: 3:30	MR: 4:09
MS: 13:22	MS: 14:32	MS: 15:41	MS: 16:50	MS: 17:59	MS: 19:06	MS: 20:08
						NM: 21:39
18	19	20	21	22	23	24
SR: 4:55	SR: 4:55	SR: 4:55	SR: 4:56	SR: 4:56	SR: 4:56	SR: 4:56
SS: 19:59	SS: 20:00	SS: 20:00	SS: 20:00	SS: 20:00	SS: 20:00	SS: 20:00
MR: 4:56	MR: 5:51	MR: 6:50	MR: 7:52	MR: 8:55	MR: 9:56	MR: 10:57
MS: 21:04	MS: 21:50	MS: 22:29	MS: 23:00	MS: 23:26	MS: 23:49	MS: None
			JSO: 7:59			
25	26	27	28	29	30	
SR: 4:57	SR: 4:57	SR: 4:57	SR: 4:58	SR: 4:58	SR: 4:59	
SS: 20:01	SS: 20:01	SS: 20:01	SS: 20:01	SS: 20:01	SS: 20:00	
MR: 11:58	MR: 12:59	MR: 14:02	MR: 15:09	MR: 16:20	MR: 17:34	
MS: 0:10	MS: 0:30	MS: 0:50	MS: 1:12	MS: 1:38	MS: 2:09	
	FQ: 0:51					

July 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 SR: 4:59 SS: 20:00 MR: 18:48 MS: 2:49
2 SR: 5:00 SS: 20:00 MR: 19:58 MS: 3:40	3 SR: 5:00 SS: 20:00 MR: 20:57 MS: 4:45 FM: 4:41	4 SR: 5:01 SS: 20:00 MR: 21:45 MS: 6:00	5 SR: 5:01 SS: 20:00 MR: 22:23 MS: 7:21	6 SR: 5:02 SS: 19:59 MR: 22:54 MS: 8:41	7 SR: 5:03 SS: 19:59 MR: 23:20 MS: 9:59	8 SR: 5:03 SS: 19:59 MR: 23:44 MS: 11:12
9 SR: 5:04 SS: 19:58 MR: None MS: 12:23 LQ: 18:49	10 SR: 5:04 SS: 19:58 MR: 0:08 MS: 13:33	11 SR: 5:05 SS: 19:57 MR: 0:32 MS: 14:42	12 SR: 5:06 SS: 19:57 MR: 0:59 MS: 15:51	13 SR: 5:07 SS: 19:56 MR: 1:30 MS: 16:58	14 SR: 5:07 SS: 19:56 MR: 2:08 MS: 18:01	15 SR: 5:08 SS: 19:55 MR: 2:52 MS: 18:58
16 SR: 5:09 SS: 19:55 MR: 3:44 MS: 19:47	17 SR: 5:10 SS: 19:54 MR: 4:42 MS: 20:28 NM: 11:33	18 SR: 5:11 SS: 19:53 MR: 5:43 MS: 21:02	19 SR: 5:11 SS: 19:53 MR: 6:46 MS: 21:29	20 SR: 5:12 SS: 19:52 MR: 7:48 MS: 21:53	21 SR: 5:13 SS: 19:51 MR: 8:49 MS: 22:14	22 SR: 5:14 SS: 19:50 MR: 9:49 MS: 22:34
23 SR: 5:15 SS: 19:50 MR: 10:49 MS: 22:54	24 SR: 5:16 SS: 19:49 MR: 11:50 MS: 23:14	25 SR: 5:17 SS: 19:48 MR: 12:54 MS: 23:38 FQ: 15:08	26 SR: 5:17 SS: 19:47 MR: 14:01 MS: None	27 SR: 5:18 SS: 19:46 MR: 15:12 MS: 0:05	28 SR: 5:19 SS: 19:45 MR: 16:25 MS: 0:40	29 SR: 5:20 SS: 19:44 MR: 17:36 MS: 1:24
30 SR: 5:21 SS: 19:43 MR: 18:40 MS: 2:22	31 SR: 5:22 SS: 19:42 MR: 19:34 MS: 3:32					

August 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1 SR: 5:23 SS: 19:41 MR: 20:17 MS: 4:52 FM: 11:33	2 SR: 5:24 SS: 19:40 MR: 20:52 MS: 6:15	3 SR: 5:25 SS: 19:39 MR: 21:20 MS: 7:36	4 SR: 5:26 SS: 19:38 MR: 21:46 MS: 8:54	5 SR: 5:27 SS: 19:36 MR: 22:10 MS: 10:09
6 SR: 5:28 SS: 19:35 MR: 22:35 MS: 11:21	7 SR: 5:29 SS: 19:34 MR: 23:01 MS: 12:32	8 SR: 5:30 SS: 19:33 MR: 23:32 MS: 13:43 LQ: 3:30	9 SR: 5:31 SS: 19:32 MR: None MS: 14:51	10 SR: 5:32 SS: 19:30 MR: 0:07 MS: 15:56	11 SR: 5:33 SS: 19:29 MR: 0:49 MS: 16:55	12 SR: 5:34 SS: 19:28 MR: 1:39 MS: 17:46
13 SR: 5:35 SS: 19:26 MR: 2:35 MS: 18:29	14 SR: 5:36 SS: 19:25 MR: 3:36 MS: 19:04	15 SR: 5:37 SS: 19:24 MR: 4:38 MS: 19:33	16 SR: 5:38 SS: 19:22 MR: 5:40 MS: 19:58 NM: 2:39	17 SR: 5:38 SS: 19:21 MR: 6:42 MS: 20:20	18 SR: 5:39 SS: 19:19 MR: 7:42 MS: 20:39	19 SR: 5:40 SS: 19:18 MR: 8:42 MS: 20:59
20 SR: 5:41 SS: 19:17 MR: 9:43 MS: 21:19	21 SR: 5:42 SS: 19:15 MR: 10:45 MS: 21:41	22 SR: 5:43 SS: 19:14 MR: 11:49 MS: 22:06	23 SR: 5:44 SS: 19:12 MR: 12:57 MS: 22:36	24 SR: 5:45 SS: 19:11 MR: 14:07 MS: 23:15 FQ: 2:58	25 SR: 5:46 SS: 19:09 MR: 15:18 MS: None	26 SR: 5:47 SS: 19:08 MR: 16:23 MS: 0:05
27 SR: 5:48 SS: 19:06 MR: 17:21 MS: 1:08	28 SR: 5:49 SS: 19:04 MR: 18:08 MS: 2:22	29 SR: 5:50 SS: 19:03 MR: 18:46 MS: 3:43	30 SR: 5:51 SS: 19:01 MR: 19:17 MS: 5:05 FM: 18:37	31 SR: 5:52 SS: 19:00 MR: 19:45 MS: 6:26		

September 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 SR: 5:53 SS: 18:58 MR: 20:10 MS: 7:44	2 SR: 5:54 SS: 18:56 MR: 20:35 MS: 9:00
3 SR: 5:55 SS: 18:55 MR: 21:01 MS: 10:14	4 SR: 5:56 SS: 18:53 MR: 21:31 MS: 11:28	5 SR: 5:57 SS: 18:52 MR: 22:05 MS: 12:39	6 SR: 5:58 SS: 18:50 MR: 22:46 MS: 13:47 LQ: 15:23	7 SR: 5:59 SS: 18:48 MR: 23:33 MS: 14:50	8 SR: 6:00 SS: 18:47 MR: None MS: 15:44	9 SR: 6:01 SS: 18:45 MR: 0:28 MS: 16:29
10 SR: 6:02 SS: 18:43 MR: 1:28 MS: 17:07	11 SR: 6:03 SS: 18:42 MR: 2:30 MS: 17:37	12 SR: 6:04 SS: 18:40 MR: 3:32 MS: 18:03	13 SR: 6:05 SS: 18:38 MR: 4:34 MS: 18:25	14 SR: 6:06 SS: 18:37 MR: 5:35 MS: 18:46 NM: 18:40	15 SR: 6:07 SS: 18:35 MR: 6:36 MS: 19:05	16 SR: 6:08 SS: 18:33 MR: 7:36 MS: 19:25
17 SR: 6:08 SS: 18:32 MR: 8:38 MS: 19:46	18 SR: 6:09 SS: 18:30 MR: 9:42 MS: 20:09	19 SR: 6:10 SS: 18:28 MR: 10:49 MS: 20:38	20 SR: 6:11 SS: 18:27 MR: 11:57 MS: 21:13	21 SR: 6:12 SS: 18:25 MR: 13:07 MS: 21:57	22 SR: 6:13 SS: 18:23 MR: 14:12 MS: 22:53 FQ: 12:33 SEQ: 23:49	23 SR: 6:14 SS: 18:22 MR: 15:11 MS: None
24 SR: 6:15 SS: 18:20 MR: 16:01 MS: 0:01	25 SR: 6:16 SS: 18:18 MR: 16:41 MS: 1:17	26 SR: 6:17 SS: 18:17 MR: 17:14 MS: 2:36	27 SR: 6:18 SS: 18:15 MR: 17:43 MS: 3:56	28 SR: 6:19 SS: 18:13 MR: 18:08 MS: 5:15	29 SR: 6:20 SS: 18:12 MR: 18:33 MS: 6:32 FM: 2:58	30 SR: 6:21 SS: 18:10 MR: 18:59 MS: 7:48

October 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 SR: 6:22 SS: 18:08 MR: 19:28 MS: 9:04	2 SR: 6:23 SS: 18:07 MR: 20:00 MS: 10:19	3 SR: 6:24 SS: 18:05 MR: 20:39 MS: 11:31	4 SR: 6:25 SS: 18:03 MR: 21:25 MS: 12:38	5 SR: 6:26 SS: 18:02 MR: 22:19 MS: 13:37	6 SR: 6:27 SS: 18:00 MR: 23:18 MS: 14:27 LQ: 6:49	7 SR: 6:28 SS: 17:58 MR: None MS: 15:07
8 SR: 6:29 SS: 17:57 MR: 0:20 MS: 15:40	9 SR: 6:30 SS: 17:55 MR: 1:22 MS: 16:07	10 SR: 6:31 SS: 17:54 MR: 2:25 MS: 16:30	11 SR: 6:33 SS: 17:52 MR: 3:26 MS: 16:51	12 SR: 6:34 SS: 17:51 MR: 4:27 MS: 17:11	13 SR: 6:35 SS: 17:49 MR: 5:28 MS: 17:30	14 SR: 6:36 SS: 17:48 MR: 6:29 MS: 17:51 NM: 10:55 SE: 10:56
15 SR: 6:37 SS: 17:46 MR: 7:34 MS: 18:14	16 SR: 6:38 SS: 17:44 MR: 8:40 MS: 18:41	17 SR: 6:39 SS: 17:43 MR: 9:49 MS: 19:14	18 SR: 6:40 SS: 17:42 MR: 10:59 MS: 19:55	19 SR: 6:41 SS: 17:40 MR: 12:06 MS: 20:47	20 SR: 6:42 SS: 17:39 MR: 13:06 MS: 21:50	21 SR: 6:43 SS: 17:37 MR: 13:58 MS: 23:02 FQ: 20:30
22 SR: 6:44 SS: 17:36 MR: 14:40 MS: None	23 SR: 6:46 SS: 17:34 MR: 15:14 MS: 0:18	24 SR: 6:47 SS: 17:33 MR: 15:43 MS: 1:35	25 SR: 6:48 SS: 17:32 MR: 16:09 MS: 2:52	26 SR: 6:49 SS: 17:30 MR: 16:33 MS: 4:07	27 SR: 6:50 SS: 17:29 MR: 16:58 MS: 5:22	28 SR: 6:51 SS: 17:28 MR: 17:24 MS: 6:37 FM: 13:24 LE: 13:13
29 SR: 6:52 SS: 17:26 MR: 17:55 MS: 7:53	30 SR: 6:53 SS: 17:25 MR: 18:31 MS: 9:08	31 SR: 6:55 SS: 17:24 MR: 19:15 MS: 10:19				

November 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 SR: 6:56 SS: 17:23 MR: 20:06 MS: 11:23	2 SR: 6:57 SS: 17:22 MR: 21:04 MS: 12:19	3 SR: 6:58 SS: 17:20 MR: 22:07 MS: 13:04	4 SR: 6:59 SS: 17:19 MR: 23:10 MS: 13:40
5 SR: 7:00 SS: 17:18 MR: None MS: 14:09 LQ: 1:39	6 SR: 7:02 SS: 17:17 MR: 0:13 MS: 14:34	7 SR: 7:03 SS: 17:16 MR: 1:14 MS: 14:55	8 SR: 7:04 SS: 17:15 MR: 2:15 MS: 15:15	9 SR: 7:05 SS: 17:14 MR: 3:16 MS: 15:35	10 SR: 7:06 SS: 17:13 MR: 4:17 MS: 15:55	11 SR: 7:07 SS: 17:12 MR: 5:20 MS: 16:17
12 SR: 7:09 SS: 17:11 MR: 6:27 MS: 16:42	13 SR: 7:10 SS: 17:10 MR: 7:36 MS: 17:14 NM: 2:27	14 SR: 7:11 SS: 17:09 MR: 8:47 MS: 17:53	15 SR: 7:12 SS: 17:08 MR: 9:57 MS: 18:42	16 SR: 7:13 SS: 17:08 MR: 11:01 MS: 19:43	17 SR: 7:14 SS: 17:07 MR: 11:56 MS: 20:53	18 SR: 7:16 SS: 17:06 MR: 12:40 MS: 22:08
19 SR: 7:17 SS: 17:05 MR: 13:16 MS: 23:24	20 SR: 7:18 SS: 17:05 MR: 13:46 MS: None FQ: 3:51	21 SR: 7:19 SS: 17:04 MR: 14:12 MS: 0:39	22 SR: 7:20 SS: 17:04 MR: 14:36 MS: 1:52	23 SR: 7:21 SS: 17:03 MR: 14:59 MS: 3:05	24 SR: 7:22 SS: 17:02 MR: 15:24 MS: 4:17	25 SR: 7:24 SS: 17:02 MR: 15:52 MS: 5:31
26 SR: 7:25 SS: 17:02 MR: 16:25 MS: 6:45	27 SR: 7:26 SS: 17:01 MR: 17:06 MS: 7:58 FM: 2:17	28 SR: 7:27 SS: 17:01 MR: 17:54 MS: 9:06	29 SR: 7:28 SS: 17:00 MR: 18:50 MS: 10:06	30 SR: 7:29 SS: 17:00 MR: 19:51 MS: 10:56		

December 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 SR: 7:30 SS: 17:00 MR: 20:55 MS: 11:36	2 SR: 7:31 SS: 17:00 MR: 21:59 MS: 12:09
3 SR: 7:32 SS: 16:59 MR: 23:01 MS: 12:35	4 SR: 7:33 SS: 16:59 MR: None MS: 12:58 LQ: 22:52	5 SR: 7:34 SS: 16:59 MR: 0:02 MS: 13:18	6 SR: 7:35 SS: 16:59 MR: 1:02 MS: 13:38	7 SR: 7:36 SS: 16:59 MR: 2:03 MS: 13:57	8 SR: 7:37 SS: 16:59 MR: 3:04 MS: 14:18	9 SR: 7:37 SS: 16:59 MR: 4:09 MS: 14:42
10 SR: 7:38 SS: 16:59 MR: 5:17 MS: 15:11	11 SR: 7:39 SS: 16:59 MR: 6:28 MS: 15:47	12 SR: 7:40 SS: 16:59 MR: 7:40 MS: 16:33 NM: 16:32	13 SR: 7:41 SS: 16:59 MR: 8:48 MS: 17:31	14 SR: 7:41 SS: 17:00 MR: 9:48 MS: 18:39	15 SR: 7:42 SS: 17:00 MR: 10:38 MS: 19:55	16 SR: 7:43 SS: 17:00 MR: 11:17 MS: 21:13
17 SR: 7:43 SS: 17:01 MR: 11:49 MS: 22:29	18 SR: 7:44 SS: 17:01 MR: 12:16 MS: 23:43	19 SR: 7:45 SS: 17:01 MR: 12:40 MS: None FQ: 11:40	20 SR: 7:45 SS: 17:02 MR: 13:03 MS: 0:55	21 SR: 7:46 SS: 17:02 MR: 13:27 MS: 2:07	22 SR: 7:46 SS: 17:03 MR: 13:54 MS: 3:18	23 SR: 7:47 SS: 17:03 MR: 14:24 MS: 4:30
24 SR: 7:47 SS: 17:04 MR: 15:01 MS: 5:42	25 SR: 7:48 SS: 17:05 MR: 15:45 MS: 6:51	26 SR: 7:48 SS: 17:05 MR: 16:37 MS: 7:54 FM: 17:34	27 SR: 7:48 SS: 17:06 MR: 17:37 MS: 8:48	28 SR: 7:49 SS: 17:07 MR: 18:41 MS: 9:32	29 SR: 7:49 SS: 17:07 MR: 19:45 MS: 10:07	30 SR: 7:49 SS: 17:08 MR: 20:49 MS: 10:36
31 SR: 7:49 SS: 17:09 MR: 21:50 MS: 11:00						

2/26/2023	6:37	16:53	21h39m22s	-16°09'38"	15°27'26"	0.906	1.32162
3/ 5/2023	6:41	17:27	22h25m00s	-12°13'30"	10°49'35"	0.950	1.35798
3/12/2023	6:42	18:04	23h12m02s	-7°14'45"	5°21'22"	0.986	1.36897
3/19/2023	6:43	18:47	0h00m45s	-1°19'11"	1°59'49"	0.998	1.34390
3/26/2023	6:43	19:32	0h50m46s	5°12'50"	8°37'57"	0.941	1.26645
4/ 2/2023	6:41	20:14	1h38m57s	11°30'29"	15°09'18"	0.765	1.12758
4/ 9/2023	6:35	20:41	2h18m39s	16°21'16"	19°04'38"	0.505	0.94965
4/16/2023	6:21	20:43	2h43m03s	18°56'13"	18°38'24"	0.262	0.77757
4/23/2023	5:58	20:17	2h48m50s	19°00'13"	13°09'15"	0.088	0.64580
4/30/2023	5:29	19:28	2h38m55s	16°47'21"	3°23'30"	0.005	0.57257
5/ 7/2023	4:59	18:35	2h24m24s	13°32'57"	8°00'24"	0.024	0.56279
5/14/2023	4:34	17:55	2h17m38s	11°11'01"	17°14'23"	0.117	0.60723
5/21/2023	4:15	17:35	2h23m43s	10°41'45"	22°48'12"	0.237	0.68993
5/28/2023	4:01	17:33	2h42m05s	11°59'16"	24°50'52"	0.363	0.79787
6/ 4/2023	3:54	17:46	3h11m08s	14°33'37"	23°59'09"	0.495	0.92272
6/11/2023	3:53	18:12	3h50m24s	17°51'14"	20°39'06"	0.643	1.05688
6/18/2023	4:03	18:50	4h40m28s	21°12'29"	15°03'36"	0.807	1.18698
6/25/2023	4:26	19:34	5h41m07s	23°42'34"	7°33'07"	0.951	1.28732
7/ 2/2023	5:03	20:15	6h47m47s	24°21'04"	1°40'29"	0.998	1.32788
7/ 9/2023	5:47	20:42	7h52m01s	22°48'23"	9°16'28"	0.939	1.30377
7/16/2023	6:29	20:55	8h48m15s	19°37'15"	15°59'35"	0.840	1.23690
7/23/2023	7:04	20:57	9h35m30s	15°32'11"	21°12'56"	0.741	1.14901
7/30/2023	7:31	20:51	10h14m34s	11°07'35"	24°55'52"	0.647	1.05187
8/ 6/2023	7:50	20:39	10h45m57s	6°49'25"	27°02'16"	0.551	0.95079
8/13/2023	7:57	20:20	11h09m10s	3°02'17"	27°11'25"	0.444	0.84888
8/20/2023	7:50	19:55	11h22m10s	0°17'57"	24°40'19"	0.315	0.75096
8/27/2023	7:23	19:23	11h21m21s	-0°36'04"	18°22'37"	0.163	0.66885
9/ 3/2023	6:32	18:45	11h05m07s	1°10'31"	7°56'10"	0.032	0.62826
9/10/2023	5:30	18:10	10h43m30s	5°01'36"	7°10'52"	0.032	0.66614
9/17/2023	4:49	17:50	10h38m07s	7°58'21"	15°46'10"	0.237	0.79845
9/24/2023	4:46	17:44	10h59m02s	7°42'24"	17°44'13"	0.555	0.98926
10/ 1/2023	5:10	17:44	11h37m44s	4°25'17"	14°32'22"	0.814	1.17258
10/ 8/2023	5:44	17:44	12h22m19s	-0°26'59"	9°19'49"	0.946	1.30656
10/15/2023	6:19	17:43	13h07m01s	-5°42'37"	3°58'14"	0.992	1.38803
10/22/2023	6:53	17:41	13h50m44s	-10°44'59"	1°20'57"	0.999	1.42753
10/29/2023	7:25	17:41	14h33m52s	-15°17'22"	5°39'17"	0.988	1.43414
11/ 5/2023	7:56	17:42	15h17m06s	-19°10'40"	9°41'53"	0.967	1.41285
11/12/2023	8:24	17:45	16h00m50s	-22°17'35"	13°23'18"	0.934	1.36520
11/19/2023	8:50	17:53	16h44m56s	-24°30'36"	16°43'15"	0.885	1.29024
11/26/2023	9:11	18:04	17h28m10s	-25°41'51"	19°31'30"	0.806	1.18540
12/ 3/2023	9:21	18:14	18h07m08s	-25°45'24"	21°11'33"	0.670	1.04846
12/10/2023	9:13	18:15	18h33m31s	-24°43'45"	20°01'06"	0.441	0.88516
12/17/2023	8:32	17:48	18h31m17s	-22°56'37"	12°26'23"	0.133	0.73232
12/24/2023	7:19	16:51	17h55m38s	-20°59'02"	3°48'26"	0.011	0.67745
12/31/2023	6:24	16:03	17h28m15s	-20°07'44"	16°45'55"	0.229	0.75903

Venus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2023	9:01	18:28	19h58m59s	-22°02'15"	17°09'31"	0.959	1.60744
1/ 8/2023	9:02	18:45	20h35m43s	-20°11'32"	18°47'34"	0.950	1.58627
1/15/2023	9:01	19:03	21h11m25s	-17°52'15"	20°24'47"	0.941	1.56337
1/22/2023	8:57	19:20	21h46m02s	-15°08'26"	22°01'10"	0.931	1.53867
1/29/2023	8:52	19:37	22h19m38s	-12°04'35"	23°36'51"	0.920	1.51209
2/ 5/2023	8:45	19:54	22h52m19s	-8°45'13"	25°11'53"	0.908	1.48362
2/12/2023	8:37	20:11	23h24m16s	-5°14'49"	26°46'07"	0.895	1.45330

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2023
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2/19/2023	8:29	20:27	23h55m43s	-1°37'41"	28°19'25"	0.881	1.42107
2/26/2023	8:20	20:43	0h26m52s	2°01'54"	29°51'51"	0.866	1.38682
3/ 5/2023	8:11	20:59	0h57m58s	5°39'40"	31°23'18"	0.849	1.35052
3/12/2023	8:02	21:15	1h29m13s	9°11'28"	32°53'27"	0.832	1.31221
3/19/2023	7:54	21:31	2h00m51s	12°33'12"	34°21'55"	0.813	1.27191
3/26/2023	7:47	21:48	2h33m00s	15°40'48"	35°48'29"	0.792	1.22956
4/ 2/2023	7:41	22:04	3h05m48s	18°30'07"	37°12'47"	0.771	1.18515
4/ 9/2023	7:37	22:20	3h39m16s	20°57'14"	38°34'05"	0.748	1.13879
4/16/2023	7:35	22:35	4h13m20s	22°58'37"	39°51'33"	0.723	1.09061
4/23/2023	7:35	22:48	4h47m51s	24°31'16"	41°04'28"	0.697	1.04065
4/30/2023	7:38	23:00	5h22m34s	25°32'58"	42°11'52"	0.669	0.98899
5/ 7/2023	7:43	23:08	5h57m04s	26°02'31"	43°12'17"	0.639	0.93585
5/14/2023	7:49	23:14	6h30m58s	26°00'00"	44°03'55"	0.608	0.88148
5/21/2023	7:57	23:16	7h03m50s	25°26'42"	44°44'51"	0.575	0.82609
5/28/2023	8:06	23:14	7h35m13s	24°25'07"	45°12'39"	0.539	0.76988
6/ 4/2023	8:14	23:09	8h04m42s	22°58'46"	45°23'48"	0.501	0.71319
6/11/2023	8:21	23:01	8h31m53s	21°11'59"	45°13'41"	0.460	0.65647
6/18/2023	8:26	22:48	8h56m24s	19°09'33"	44°36'47"	0.415	0.60019
6/25/2023	8:29	22:33	9h17m49s	16°56'55"	43°25'43"	0.367	0.54483
7/ 2/2023	8:27	22:14	9h35m32s	14°40'16"	41°30'05"	0.314	0.49113
7/ 9/2023	8:21	21:50	9h48m47s	12°26'38"	38°36'25"	0.256	0.44014
7/16/2023	8:08	21:22	9h56m39s	10°24'01"	34°28'59"	0.194	0.39322
7/23/2023	7:47	20:49	9h58m06s	8°42'07"	28°51'37"	0.131	0.35212
7/30/2023	7:17	20:11	9h52m19s	7°32'12"	21°36'07"	0.071	0.31918
8/ 6/2023	6:38	19:29	9h39m40s	7°03'59"	13°13'42"	0.026	0.29725
8/13/2023	5:52	18:46	9h22m48s	7°19'29"	7°40'24"	0.009	0.28876
8/20/2023	5:06	18:05	9h06m20s	8°08'51"	12°58'09"	0.025	0.29461
8/27/2023	4:23	17:31	8h54m45s	9°13'40"	21°25'55"	0.069	0.31376
9/ 3/2023	3:48	17:04	8h50m37s	10°15'30"	28°51'53"	0.129	0.34382
9/10/2023	3:22	16:44	8h54m14s	11°01'20"	34°39'53"	0.193	0.38193
9/17/2023	3:04	16:29	9h04m32s	11°24'15"	38°56'53"	0.254	0.42558
9/24/2023	2:53	16:17	9h20m06s	11°21'11"	41°59'37"	0.312	0.47297
10/ 1/2023	2:47	16:07	9h39m38s	10°51'05"	44°03'56"	0.364	0.52287
10/ 8/2023	2:45	15:59	10h02m07s	9°54'03"	45°22'51"	0.412	0.57435
10/15/2023	2:47	15:51	10h26m43s	8°31'35"	46°06'56"	0.455	0.62668
10/22/2023	2:52	15:43	10h52m48s	6°46'04"	46°24'09"	0.495	0.67939
10/29/2023	2:59	15:36	11h19m58s	4°40'24"	46°20'00"	0.532	0.73218
11/ 5/2023	3:08	15:28	11h48m00s	2°17'51"	45°58'40"	0.566	0.78479
11/12/2023	3:18	15:20	12h16m43s	-0°17'49"	45°23'42"	0.599	0.83690
11/19/2023	3:29	15:13	12h46m04s	-3°02'24"	44°37'53"	0.629	0.88832
11/26/2023	3:41	15:05	13h16m05s	-5°51'38"	43°43'02"	0.657	0.93894
12/ 3/2023	3:54	14:59	13h46m50s	-8°41'11"	42°40'37"	0.684	0.98866
12/10/2023	4:08	14:53	14h18m25s	-11°26'31"	41°32'06"	0.709	1.03729
12/17/2023	4:23	14:49	14h50m54s	-14°02'55"	40°18'41"	0.732	1.08470
12/24/2023	4:37	14:46	15h24m21s	-16°25'41"	39°01'05"	0.755	1.13085
12/31/2023	4:52	14:45	15h58m49s	-18°30'18"	37°39'54"	0.776	1.17572

Mars

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2023	14:32	5:45	4h27m35s	24°35'27"	148°39'37"	0.973	0.63842
1/ 8/2023	14:02	5:14	4h24m11s	24°29'38"	140°46'25"	0.959	0.68276
1/15/2023	13:34	4:46	4h23m38s	24°27'49"	133°32'11"	0.946	0.73334
1/22/2023	13:09	4:21	4h25m46s	24°30'18"	126°54'34"	0.934	0.78913
1/29/2023	12:46	3:59	4h30m19s	24°36'43"	120°50'26"	0.924	0.84911
2/ 5/2023	12:24	3:39	4h36m57s	24°46'05"	115°15'48"	0.916	0.91232

2/12/2023	12:05	3:20	4h45m22s	24°57'10"	110°06'12"	0.909	0.97802
2/19/2023	11:46	3:04	4h55m19s	25°08'44"	105°17'59"	0.904	1.04563
2/26/2023	11:29	2:48	5h06m35s	25°19'34"	100°48'29"	0.900	1.11458
3/ 5/2023	11:14	2:34	5h18m58s	25°28'31"	96°35'14"	0.898	1.18430
3/12/2023	10:59	2:20	5h32m17s	25°34'32"	92°35'43"	0.897	1.25439
3/19/2023	10:45	2:07	5h46m22s	25°36'44"	88°47'55"	0.897	1.32454
3/26/2023	10:33	1:54	6h01m07s	25°34'20"	85°10'35"	0.898	1.39441
4/ 2/2023	10:21	1:41	6h16m24s	25°26'43"	81°42'38"	0.900	1.46363
4/ 9/2023	10:11	1:28	6h32m07s	25°13'22"	78°22'49"	0.902	1.53193
4/16/2023	10:01	1:15	6h48m10s	24°53'54"	75°09'58"	0.905	1.59917
4/23/2023	9:51	1:02	7h04m29s	24°28'02"	72°03'28"	0.909	1.66512
4/30/2023	9:43	0:48	7h21m00s	23°55'36"	69°02'54"	0.912	1.72950
5/ 7/2023	9:35	0:34	7h37m37s	23°16'32"	66°07'35"	0.916	1.79214
5/14/2023	9:27	0:20	7h54m18s	22°30'53"	63°16'46"	0.920	1.85297
5/21/2023	9:20	0:05	8h11m01s	21°38'42"	60°30'04"	0.924	1.91185
5/28/2023	9:13	23:48	8h27m44s	20°40'09"	57°47'16"	0.929	1.96855
6/ 4/2023	9:07	23:33	8h44m23s	19°35'28"	55°08'03"	0.933	2.02296
6/11/2023	9:01	23:17	9h00m58s	18°24'57"	52°31'52"	0.938	2.07506
6/18/2023	8:55	23:01	9h17m29s	17°08'51"	49°58'22"	0.942	2.12477
6/25/2023	8:49	22:45	9h33m55s	15°47'30"	47°27'29"	0.946	2.17192
7/ 2/2023	8:43	22:28	9h50m16s	14°21'18"	44°59'02"	0.951	2.21642
7/ 9/2023	8:37	22:11	10h06m32s	12°50'39"	42°32'37"	0.955	2.25828
7/16/2023	8:32	21:54	10h22m44s	11°15'55"	40°07'56"	0.959	2.29749
7/23/2023	8:26	21:36	10h38m54s	9°37'30"	37°44'55"	0.963	2.33390
7/30/2023	8:21	21:19	10h55m02s	7°55'52"	35°23'32"	0.967	2.36747
8/ 6/2023	8:15	21:01	11h11m09s	6°11'28"	33°03'30"	0.971	2.39822
8/13/2023	8:10	20:44	11h27m18s	4°24'43"	30°44'33"	0.974	2.42618
8/20/2023	8:05	20:26	11h43m31s	2°36'05"	28°26'36"	0.978	2.45125
8/27/2023	8:00	20:09	11h59m48s	0°46'05"	26°09'43"	0.981	2.47339
9/ 3/2023	7:55	19:51	12h16m13s	-1°04'45"	23°53'46"	0.984	2.49268
9/10/2023	7:50	19:34	12h32m47s	-2°55'56"	21°38'31"	0.987	2.50916
9/17/2023	7:46	19:17	12h49m33s	-4°46'54"	19°23'54"	0.989	2.52279
9/24/2023	7:42	19:00	13h06m32s	-6°37'03"	17°10'04"	0.991	2.53355
10/ 1/2023	7:38	18:43	13h23m48s	-8°25'43"	14°57'00"	0.993	2.54153
10/ 8/2023	7:34	18:27	13h41m23s	-10°12'16"	12°44'34"	0.995	2.54684
10/15/2023	7:30	18:11	13h59m19s	-11°56'01"	10°32'43"	0.997	2.54947
10/22/2023	7:27	17:56	14h17m38s	-13°36'11"	8°21'38"	0.998	2.54943
10/29/2023	7:24	17:41	14h36m21s	-15°11'59"	6°11'29"	0.999	2.54685
11/ 5/2023	7:22	17:27	14h55m30s	-16°42'34"	4°02'12"	0.999	2.54187
11/12/2023	7:19	17:14	15h15m08s	-18°07'07"	1°53'51"	1.000	2.53454
11/19/2023	7:17	17:02	15h35m14s	-19°24'44"	0°15'24"	1.000	2.52491
11/26/2023	7:14	16:50	15h55m48s	-20°34'30"	2°20'02"	1.000	2.51311
12/ 3/2023	7:12	16:39	16h16m50s	-21°35'31"	4°24'40"	0.999	2.49936
12/10/2023	7:09	16:30	16h38m19s	-22°26'59"	6°27'59"	0.999	2.48374
12/17/2023	7:07	16:21	17h00m12s	-23°08'03"	8°29'46"	0.998	2.46633
12/24/2023	7:03	16:14	17h22m27s	-23°38'00"	10°29'41"	0.996	2.44728
12/31/2023	7:00	16:08	17h45m00s	-23°56'13"	12°27'37"	0.995	2.42683

Jupiter

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2023	11:47	23:47	0h06m16s	-0°43'20"	80°51'45"	0.990	5.01024
1/ 8/2023	11:22	23:24	0h09m33s	-0°20'07"	74°38'27"	0.991	5.11893
1/15/2023	10:56	23:02	0h13m17s	0°05'50"	68°32'22"	0.991	5.22457
1/22/2023	10:31	22:40	0h17m25s	0°34'15"	62°32'59"	0.992	5.32607
1/29/2023	10:07	22:19	0h21m55s	1°04'51"	56°40'02"	0.993	5.42237

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2023
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2/ 5/2023	9:42	21:58	0h26m45s	1°37'21"	50°53'14"	0.994	5.51252
2/12/2023	9:18	21:38	0h31m51s	2°11'28"	45°11'58"	0.995	5.59584
2/19/2023	8:54	21:18	0h37m13s	2°46'57"	39°35'37"	0.996	5.67164
2/26/2023	8:30	20:58	0h42m49s	3°23'32"	34°03'57"	0.997	5.73925
3/ 5/2023	8:06	20:38	0h48m35s	4°00'59"	28°36'45"	0.998	5.79815
3/12/2023	7:42	20:19	0h54m31s	4°39'01"	23°13'32"	0.998	5.84804
3/19/2023	7:18	19:59	1h00m34s	5°17'27"	17°53'46"	0.999	5.88859
3/26/2023	6:55	19:40	1h06m44s	5°56'04"	12°37'17"	1.000	5.91950
4/ 2/2023	6:31	19:21	1h12m59s	6°34'38"	7°24'39"	1.000	5.94059
4/ 9/2023	6:08	19:02	1h19m17s	7°12'56"	2°22'50"	1.000	5.95187
4/16/2023	5:44	18:43	1h25m36s	7°50'49"	3°13'36"	1.000	5.95334
4/23/2023	5:21	18:24	1h31m55s	8°28'06"	8°16'22"	1.000	5.94497
4/30/2023	4:57	18:05	1h38m14s	9°04'36"	13°23'21"	0.999	5.92687
5/ 7/2023	4:34	17:46	1h44m29s	9°40'07"	18°30'43"	0.999	5.89931
5/14/2023	4:11	17:26	1h50m40s	10°14'34"	23°38'36"	0.998	5.86254
5/21/2023	3:47	17:07	1h56m46s	10°47'45"	28°47'30"	0.998	5.81678
5/28/2023	3:24	16:47	2h02m43s	11°19'33"	33°57'43"	0.997	5.76239
6/ 4/2023	3:00	16:27	2h08m32s	11°49'49"	39°09'38"	0.996	5.69986
6/11/2023	2:36	16:07	2h14m09s	12°18'26"	44°24'01"	0.995	5.62970
6/18/2023	2:13	15:46	2h19m34s	12°45'18"	49°41'39"	0.994	5.55234
6/25/2023	1:49	15:26	2h24m43s	13°10'16"	55°03'06"	0.993	5.46840
7/ 2/2023	1:24	15:04	2h29m36s	13°33'13"	60°28'50"	0.992	5.37864
7/ 9/2023	1:00	14:42	2h34m08s	13°54'05"	65°59'39"	0.991	5.28380
7/16/2023	0:36	14:20	2h38m19s	14°12'44"	71°36'31"	0.990	5.18461
7/23/2023	0:11	13:57	2h42m06s	14°29'05"	77°20'11"	0.990	5.08199
7/30/2023	23:42	13:34	2h45m25s	14°43'01"	83°11'08"	0.990	4.97701
8/ 6/2023	23:17	13:10	2h48m15s	14°54'29"	89°10'09"	0.989	4.87075
8/13/2023	22:51	12:45	2h50m34s	15°03'22"	95°18'15"	0.990	4.76427
8/20/2023	22:25	12:20	2h52m17s	15°09'35"	101°36'11"	0.990	4.65886
8/27/2023	21:58	11:53	2h53m25s	15°13'04"	108°04'17"	0.991	4.55596
9/ 3/2023	21:31	11:26	2h53m54s	15°13'48"	114°42'58"	0.991	4.45698
9/10/2023	21:03	10:58	2h53m45s	15°11'46"	121°32'51"	0.992	4.36333
9/17/2023	20:35	10:30	2h52m56s	15°06'57"	128°34'12"	0.994	4.27657
9/24/2023	20:06	10:00	2h51m30s	14°59'27"	135°46'34"	0.995	4.19834
10/ 1/2023	19:37	9:30	2h49m27s	14°49'25"	143°09'18"	0.996	4.13012
10/ 8/2023	19:08	8:59	2h46m52s	14°37'05"	150°41'46"	0.998	4.07327
10/15/2023	18:38	8:28	2h43m49s	14°22'46"	158°22'49"	0.999	4.02909
10/22/2023	18:08	7:56	2h40m25s	14°06'56"	166°10'07"	0.999	3.99875
10/29/2023	17:38	7:23	2h36m48s	13°50'06"	173°58'13"	1.000	3.98301
11/ 5/2023	17:08	6:51	2h33m04s	13°32'54"	177°28'53"	1.000	3.98227
11/12/2023	16:38	6:19	2h29m23s	13°15'57"	169°50'57"	1.000	3.99674
11/19/2023	16:08	5:47	2h25m53s	13°00'00"	161°56'57"	0.999	4.02625
11/26/2023	15:38	5:15	2h22m42s	12°45'41"	154°05'07"	0.998	4.07016
12/ 3/2023	15:09	4:44	2h19m56s	12°33'34"	146°18'21"	0.997	4.12751
12/10/2023	14:40	4:14	2h17m41s	12°24'07"	138°38'11"	0.996	4.19719
12/17/2023	14:11	3:45	2h16m01s	12°17'44"	131°06'08"	0.994	4.27788
12/24/2023	13:43	3:16	2h14m59s	12°14'39"	123°43'26"	0.993	4.36796
12/31/2023	13:15	2:48	2h14m36s	12°14'57"	116°30'37"	0.992	4.46576

Saturn

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2023	10:13	20:31	21h41m04s	-15°11'46"	42°13'07"	0.999	10.56207
1/ 8/2023	9:48	20:07	21h43m52s	-14°57'33"	35°48'30"	0.999	10.63492
1/15/2023	9:22	19:44	21h46m49s	-14°42'32"	29°26'18"	0.999	10.69729
1/22/2023	8:57	19:20	21h49m53s	-14°26'50"	23°06'17"	1.000	10.74844

1/29/2023	8:31	18:57	21h53m03s	-14°10'34"	16°48'38"	1.000	10.78771
2/ 5/2023	8:06	18:33	21h56m16s	-13°53'52"	10°33'54"	1.000	10.81474
2/12/2023	7:41	18:10	21h59m31s	-13°36'54"	4°25'35"	1.000	10.82932
2/19/2023	7:15	17:47	22h02m48s	-13°19'45"	2°21'09"	1.000	10.83129
2/26/2023	6:50	17:24	22h06m03s	-13°02'35"	8°17'26"	1.000	10.82058
3/ 5/2023	6:25	17:00	22h09m17s	-12°45'33"	14°26'27"	1.000	10.79741
3/12/2023	5:59	16:37	22h12m26s	-12°28'47"	20°36'17"	1.000	10.76213
3/19/2023	5:34	16:14	22h15m31s	-12°12'26"	26°46'26"	0.999	10.71512
3/26/2023	5:08	15:50	22h18m29s	-11°56'38"	32°56'55"	0.999	10.65685
4/ 2/2023	4:43	15:26	22h21m19s	-11°41'33"	39°07'43"	0.999	10.58806
4/ 9/2023	4:17	15:02	22h24m00s	-11°27'19"	45°19'09"	0.999	10.50958
4/16/2023	3:51	14:38	22h26m30s	-11°14'04"	51°31'48"	0.998	10.42227
4/23/2023	3:25	14:13	22h28m49s	-11°01'56"	57°46'04"	0.998	10.32704
4/30/2023	2:59	13:48	22h30m55s	-10°51'04"	64°02'06"	0.998	10.22505
5/ 7/2023	2:33	13:23	22h32m47s	-10°41'35"	70°20'10"	0.998	10.11755
5/14/2023	2:07	12:58	22h34m25s	-10°33'35"	76°40'54"	0.997	10.00574
5/21/2023	1:40	12:32	22h35m46s	-10°27'11"	83°04'48"	0.997	9.89089
5/28/2023	1:13	12:06	22h36m50s	-10°22'27"	89°32'00"	0.997	9.77450
6/ 4/2023	0:46	11:39	22h37m37s	-10°19'28"	96°02'39"	0.997	9.65807
6/11/2023	0:19	11:12	22h38m07s	-10°18'16"	102°37'13"	0.997	9.54304
6/18/2023	23:48	10:45	22h38m18s	-10°18'52"	109°16'10"	0.998	9.43089
6/25/2023	23:20	10:17	22h38m10s	-10°21'17"	115°59'30"	0.998	9.32324
7/ 2/2023	22:53	9:49	22h37m45s	-10°25'25"	122°47'04"	0.998	9.22167
7/ 9/2023	22:25	9:20	22h37m03s	-10°31'13"	129°38'59"	0.998	9.12760
7/16/2023	21:57	8:51	22h36m04s	-10°38'34"	136°35'27"	0.999	9.04241
7/23/2023	21:28	8:22	22h34m49s	-10°47'18"	143°36'09"	0.999	8.96754
7/30/2023	21:00	7:52	22h33m21s	-10°57'13"	150°40'25"	0.999	8.90424
8/ 6/2023	20:31	7:22	22h31m42s	-11°08'04"	157°47'45"	1.000	8.85349
8/13/2023	20:03	6:52	22h29m53s	-11°19'37"	164°57'21"	1.000	8.81616
8/20/2023	19:34	6:22	22h27m57s	-11°31'36"	172°05'52"	1.000	8.79300
8/27/2023	19:05	5:52	22h25m58s	-11°43'40"	178°09'53"	1.000	8.78446
9/ 3/2023	18:36	5:22	22h23m59s	-11°55'33"	172°54'41"	1.000	8.79066
9/10/2023	18:08	4:52	22h22m02s	-12°06'57"	165°43'38"	1.000	8.81149
9/17/2023	17:39	4:22	22h20m10s	-12°17'35"	158°27'47"	1.000	8.84673
9/24/2023	17:10	3:52	22h18m27s	-12°27'11"	151°11'38"	0.999	8.89579
10/ 1/2023	16:42	3:22	22h16m54s	-12°35'32"	143°56'37"	0.999	8.95774
10/ 8/2023	16:13	2:53	22h15m36s	-12°42'27"	136°43'15"	0.999	9.03154
10/15/2023	15:45	2:24	22h14m32s	-12°47'47"	129°31'59"	0.998	9.11606
10/22/2023	15:17	1:56	22h13m46s	-12°51'24"	122°23'31"	0.998	9.20989
10/29/2023	14:49	1:28	22h13m18s	-12°53'14"	115°18'22"	0.998	9.31141
11/ 5/2023	14:22	1:00	22h13m09s	-12°53'14"	108°16'35"	0.998	9.41903
11/12/2023	13:54	0:33	22h13m19s	-12°51'25"	101°18'11"	0.998	9.53119
11/19/2023	13:27	0:06	22h13m49s	-12°47'46"	94°23'26"	0.997	9.64614
11/26/2023	13:00	23:36	22h14m38s	-12°42'19"	87°32'37"	0.997	9.76212
12/ 3/2023	12:33	23:10	22h15m46s	-12°35'10"	80°45'35"	0.998	9.87748
12/10/2023	12:07	22:44	22h17m11s	-12°26'22"	74°02'05"	0.998	9.99072
12/17/2023	11:40	22:19	22h18m53s	-12°16'01"	67°22'07"	0.998	10.10024
12/24/2023	11:14	21:54	22h20m51s	-12°04'13"	60°45'52"	0.998	10.20452
12/31/2023	10:48	21:30	22h23m03s	-11°51'05"	54°13'08"	0.998	10.30226

Uranus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2023	13:32	3:34	2h51m08s	16°02'15"	124°50'48"	1.000	19.09337
1/ 8/2023	13:04	3:06	2h50m42s	16°00'30"	117°36'18"	1.000	19.19579
1/15/2023	12:36	2:38	2h50m25s	15°59'27"	110°24'18"	0.999	19.30514

1/22/2023	12:09	2:10	2h50m18s	15°59'08"	103°14'58"	0.999	19.41974
1/29/2023	11:41	1:43	2h50m22s	15°59'36"	96°08'47"	0.999	19.53775
2/ 5/2023	11:14	1:16	2h50m36s	16°00'48"	89°06'07"	0.999	19.65727
2/12/2023	10:47	0:49	2h51m00s	16°02'45"	82°06'57"	0.999	19.77656
2/19/2023	10:20	0:22	2h51m33s	16°05'25"	75°11'10"	0.999	19.89392
2/26/2023	9:53	23:51	2h52m17s	16°08'45"	68°18'56"	0.999	20.00762
3/ 5/2023	9:26	23:25	2h53m09s	16°12'44"	61°30'30"	1.000	20.11601
3/12/2023	8:59	22:59	2h54m09s	16°17'16"	54°45'42"	1.000	20.21769
3/19/2023	8:32	22:33	2h55m17s	16°22'19"	48°04'11"	1.000	20.31137
3/26/2023	8:06	22:07	2h56m32s	16°27'49"	41°25'52"	1.000	20.39579
4/ 2/2023	7:39	21:41	2h57m53s	16°33'43"	34°50'50"	1.000	20.46986
4/ 9/2023	7:13	21:15	2h59m19s	16°39'54"	28°18'51"	1.000	20.53275
4/16/2023	6:46	20:50	3h00m49s	16°46'20"	21°49'26"	1.000	20.58380
4/23/2023	6:20	20:24	3h02m22s	16°52'57"	15°22'18"	1.000	20.62236
4/30/2023	5:53	19:59	3h03m58s	16°59'39"	8°57'26"	1.000	20.64796
5/ 7/2023	5:27	19:33	3h05m36s	17°06'23"	2°35'13"	1.000	20.66046
5/14/2023	5:01	19:08	3h07m14s	17°13'05"	3°48'20"	1.000	20.65979
5/21/2023	4:34	18:42	3h08m51s	17°19'41"	10°08'35"	1.000	20.64593
5/28/2023	4:08	18:17	3h10m27s	17°26'08"	16°28'25"	1.000	20.61906
6/ 4/2023	3:42	17:51	3h12m01s	17°32'21"	22°47'45"	1.000	20.57961
6/11/2023	3:15	17:26	3h13m32s	17°38'19"	29°07'07"	1.000	20.52811
6/18/2023	2:49	17:00	3h14m59s	17°43'57"	35°27'05"	1.000	20.46509
6/25/2023	2:22	16:34	3h16m21s	17°49'14"	41°47'50"	1.000	20.39130
7/ 2/2023	1:56	16:08	3h17m37s	17°54'05"	48°09'33"	1.000	20.30770
7/ 9/2023	1:29	15:42	3h18m46s	17°58'29"	54°32'43"	1.000	20.21532
7/16/2023	1:02	15:16	3h19m49s	18°02'24"	60°57'57"	0.999	20.11519
7/23/2023	0:35	14:49	3h20m44s	18°05'48"	67°25'29"	0.999	20.00852
7/30/2023	0:08	14:23	3h21m30s	18°08'38"	73°55'23"	0.999	19.89672
8/ 6/2023	23:38	13:56	3h22m07s	18°10'54"	80°28'01"	0.999	19.78122
8/13/2023	23:10	13:29	3h22m35s	18°12'34"	87°03'55"	0.999	19.66342
8/20/2023	22:43	13:02	3h22m53s	18°13'37"	93°43'18"	0.999	19.54486
8/27/2023	22:16	12:34	3h23m01s	18°14'04"	100°26'07"	0.999	19.42725
9/ 3/2023	21:48	12:07	3h22m59s	18°13'53"	107°12'27"	0.999	19.31222
9/10/2023	21:20	11:39	3h22m47s	18°13'06"	114°02'41"	0.999	19.20132
9/17/2023	20:52	11:11	3h22m25s	18°11'43"	120°56'57"	1.000	19.09620
9/24/2023	20:25	10:43	3h21m54s	18°09'46"	127°54'57"	1.000	18.99852
10/ 1/2023	19:57	10:15	3h21m15s	18°07'16"	134°56'30"	1.000	18.90981
10/ 8/2023	19:28	9:46	3h20m27s	18°04'16"	142°01'42"	1.000	18.83140
10/15/2023	19:00	9:17	3h19m33s	18°00'50"	149°10'29"	1.000	18.76460
10/22/2023	18:32	8:49	3h18m32s	17°57'00"	156°22'22"	1.000	18.71065
10/29/2023	18:04	8:20	3h17m27s	17°52'53"	163°36'47"	1.000	18.67045
11/ 5/2023	17:35	7:51	3h16m18s	17°48'32"	170°53'30"	1.000	18.64466
11/12/2023	17:07	7:22	3h15m08s	17°44'03"	178°11'10"	1.000	18.63381
11/19/2023	16:38	6:53	3h13m57s	17°39'32"	174°26'04"	1.000	18.63823
11/26/2023	16:10	6:24	3h12m48s	17°35'04"	167°05'03"	1.000	18.65785
12/ 3/2023	15:42	5:55	3h11m41s	17°30'47"	159°43'27"	1.000	18.69231
12/10/2023	15:13	5:26	3h10m38s	17°26'45"	152°21'41"	1.000	18.74109
12/17/2023	14:45	4:57	3h09m41s	17°23'05"	145°00'24"	1.000	18.80347
12/24/2023	14:17	4:29	3h08m51s	17°19'51"	137°40'23"	1.000	18.87835
12/31/2023	13:49	4:00	3h08m08s	17°17'09"	130°22'05"	1.000	18.96441

Neptune

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2023	11:28	23:05	23h35m43s	-3°55'01"	72°35'35"	1.000	30.19205
1/ 8/2023	11:00	22:38	23h36m11s	-3°51'52"	65°35'14"	1.000	30.30545

1/15/2023	10:33	22:11	23h36m43s	-3°48'09"	58°36'27"	1.000	30.41286
1/22/2023	10:06	21:45	23h37m21s	-3°43'54"	51°39'13"	1.000	30.51274
1/29/2023	9:39	21:18	23h38m03s	-3°39'10"	44°43'49"	1.000	30.60361
2/ 5/2023	9:12	20:52	23h38m50s	-3°34'01"	37°50'30"	1.000	30.68419
2/12/2023	8:45	20:25	23h39m40s	-3°28'31"	30°59'10"	1.000	30.75348
2/19/2023	8:18	19:59	23h40m33s	-3°22'43"	24°09'41"	1.000	30.81057
2/26/2023	7:51	19:33	23h41m29s	-3°16'41"	17°22'19"	1.000	30.85464
3/ 5/2023	7:24	19:06	23h42m26s	-3°10'30"	10°37'48"	1.000	30.88516
3/12/2023	6:57	18:40	23h43m24s	-3°04'15"	4°00'13"	1.000	30.90189
3/19/2023	6:30	18:14	23h44m23s	-2°57'57"	3°06'37"	1.000	30.90466
3/26/2023	6:03	17:48	23h45m21s	-2°51'44"	9°38'26"	1.000	30.89342
4/ 2/2023	5:36	17:22	23h46m19s	-2°45'38"	16°16'22"	1.000	30.86843
4/ 9/2023	5:09	16:55	23h47m15s	-2°39'44"	22°53'56"	1.000	30.83016
4/16/2023	4:42	16:29	23h48m09s	-2°34'04"	29°30'54"	1.000	30.77919
4/23/2023	4:15	16:03	23h49m00s	-2°28'44"	36°07'17"	1.000	30.71614
4/30/2023	3:48	15:36	23h49m48s	-2°23'46"	42°43'00"	1.000	30.64194
5/ 7/2023	3:21	15:10	23h50m33s	-2°19'14"	49°18'08"	1.000	30.55770
5/14/2023	2:54	14:43	23h51m13s	-2°15'10"	55°53'09"	1.000	30.46452
5/21/2023	2:27	14:16	23h51m49s	-2°11'38"	62°28'24"	1.000	30.36357
5/28/2023	2:00	13:49	23h52m19s	-2°08'38"	69°03'52"	1.000	30.25625
6/ 4/2023	1:33	13:22	23h52m45s	-2°06'14"	75°39'37"	1.000	30.14408
6/11/2023	1:05	12:55	23h53m05s	-2°04'26"	82°16'06"	1.000	30.02851
6/18/2023	0:38	12:28	23h53m19s	-2°03'16"	88°53'42"	1.000	29.91101
6/25/2023	0:11	12:01	23h53m27s	-2°02'44"	95°32'27"	1.000	29.79325
7/ 2/2023	23:39	11:33	23h53m30s	-2°02'51"	102°12'19"	1.000	29.67689
7/ 9/2023	23:12	11:06	23h53m27s	-2°03'34"	108°53'37"	1.000	29.56349
7/16/2023	22:44	10:38	23h53m18s	-2°04'55"	115°36'44"	1.000	29.45455
7/23/2023	22:16	10:10	23h53m03s	-2°06'51"	122°21'41"	1.000	29.35168
7/30/2023	21:49	9:42	23h52m43s	-2°09'20"	129°08'20"	1.000	29.25644
8/ 6/2023	21:21	9:14	23h52m18s	-2°12'19"	135°56'45"	1.000	29.17014
8/13/2023	20:53	8:46	23h51m49s	-2°15'45"	142°47'16"	1.000	29.09402
8/20/2023	20:25	8:17	23h51m16s	-2°19'35"	149°39'50"	1.000	29.02931
8/27/2023	19:57	7:49	23h50m40s	-2°23'44"	156°34'05"	1.000	28.97708
9/ 3/2023	19:29	7:21	23h50m01s	-2°28'09"	163°29'42"	1.000	28.93810
9/10/2023	19:02	6:52	23h49m20s	-2°32'43"	170°25'59"	1.000	28.91298
9/17/2023	18:34	6:24	23h48m37s	-2°37'22"	177°12'56"	1.000	28.90225
9/24/2023	18:06	5:55	23h47m55s	-2°42'02"	175°16'02"	1.000	28.90621
10/ 1/2023	17:38	5:27	23h47m13s	-2°46'35"	168°19'09"	1.000	28.92479
10/ 8/2023	17:10	4:58	23h46m32s	-2°50'58"	161°16'12"	1.000	28.95775
10/15/2023	16:42	4:30	23h45m53s	-2°55'05"	154°11'06"	1.000	29.00474
10/22/2023	16:14	4:01	23h45m17s	-2°58'51"	147°04'51"	1.000	29.06512
10/29/2023	15:46	3:33	23h44m45s	-3°02'13"	139°57'59"	1.000	29.13793
11/ 5/2023	15:18	3:05	23h44m17s	-3°05'05"	132°50'39"	1.000	29.22206
11/12/2023	14:50	2:37	23h43m53s	-3°07'25"	125°42'53"	1.000	29.31635
11/19/2023	14:23	2:09	23h43m35s	-3°09'08"	118°35'06"	1.000	29.41937
11/26/2023	13:55	1:41	23h43m22s	-3°10'15"	111°27'47"	1.000	29.52947
12/ 3/2023	13:27	1:14	23h43m16s	-3°10'41"	104°21'03"	1.000	29.64496
12/10/2023	13:00	0:46	23h43m16s	-3°10'28"	97°14'51"	1.000	29.76417
12/17/2023	12:32	0:19	23h43m21s	-3°09'33"	90°09'31"	1.000	29.88530
12/24/2023	12:05	23:48	23h43m34s	-3°07'59"	83°05'28"	1.000	30.00642
12/31/2023	11:38	23:21	23h43m52s	-3°05'44"	76°02'52"	1.000	30.12573

Pluto

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2023	9:04	18:20	20h00m52s	-22°50'15"	17°30'46"	1.000	35.61441

1/ 8/2023	8:37	17:54	20h01m50s	-22°48'01"	10°42'07"	1.000	35.64835
1/15/2023	8:10	17:28	20h02m48s	-22°45'47"	4°13'16"	1.000	35.66817
1/22/2023	7:43	17:01	20h03m47s	-22°43'33"	4°02'31"	1.000	35.67363
1/29/2023	7:17	16:35	20h04m46s	-22°41'23"	10°28'52"	1.000	35.66465
2/ 5/2023	6:50	16:08	20h05m43s	-22°39'17"	17°15'37"	1.000	35.64155
2/12/2023	6:23	15:42	20h06m39s	-22°37'19"	24°05'11"	1.000	35.60480
2/19/2023	5:57	15:15	20h07m33s	-22°35'30"	30°55'31"	1.000	35.55494
2/26/2023	5:30	14:49	20h08m24s	-22°33'51"	37°45'53"	1.000	35.49273
3/ 5/2023	5:03	14:22	20h09m11s	-22°32'25"	44°35'47"	1.000	35.41924
3/12/2023	4:36	13:55	20h09m54s	-22°31'13"	51°25'14"	1.000	35.33564
3/19/2023	4:09	13:29	20h10m33s	-22°30'16"	58°14'26"	1.000	35.24312
3/26/2023	3:42	13:02	20h11m07s	-22°29'36"	65°03'22"	1.000	35.14305
4/ 2/2023	3:15	12:35	20h11m36s	-22°29'13"	71°51'46"	1.000	35.03700
4/ 9/2023	2:48	12:07	20h11m59s	-22°29'09"	78°39'43"	1.000	34.92659
4/16/2023	2:21	11:40	20h12m16s	-22°29'23"	85°27'30"	1.000	34.81336
4/23/2023	1:53	11:13	20h12m28s	-22°29'56"	92°15'15"	1.000	34.69896
4/30/2023	1:26	10:45	20h12m33s	-22°30'48"	99°02'44"	1.000	34.58515
5/ 7/2023	0:58	10:18	20h12m33s	-22°31'58"	105°49'57"	1.000	34.47363
5/14/2023	0:31	9:50	20h12m27s	-22°33'25"	112°37'12"	1.000	34.36596
5/21/2023	0:03	9:22	20h12m15s	-22°35'09"	119°24'41"	1.000	34.26369
5/28/2023	23:32	8:54	20h11m58s	-22°37'08"	126°12'10"	1.000	34.16845
6/ 4/2023	23:04	8:26	20h11m35s	-22°39'19"	132°59'33"	1.000	34.08164
6/11/2023	22:36	7:58	20h11m09s	-22°41'42"	139°47'00"	1.000	34.00448
6/18/2023	22:08	7:30	20h10m38s	-22°44'15"	146°34'38"	1.000	33.93815
6/25/2023	21:40	7:01	20h10m03s	-22°46'54"	153°22'06"	1.000	33.88375
7/ 2/2023	21:12	6:33	20h09m26s	-22°49'39"	160°08'35"	1.000	33.84212
7/ 9/2023	20:44	6:05	20h08m47s	-22°52'25"	166°52'31"	1.000	33.81386
7/16/2023	20:16	5:36	20h08m06s	-22°55'12"	173°25'04"	1.000	33.79947
7/23/2023	19:48	5:08	20h07m24s	-22°57'56"	177°11'17"	1.000	33.79933
7/30/2023	19:20	4:40	20h06m42s	-23°00'35"	171°51'31"	1.000	33.81351
8/ 6/2023	18:52	4:11	20h06m02s	-23°03'08"	165°12'47"	1.000	33.84181
8/13/2023	18:24	3:43	20h05m22s	-23°05'30"	158°25'36"	1.000	33.88394
8/20/2023	17:56	3:14	20h04m45s	-23°07'43"	151°35'37"	1.000	33.93948
8/27/2023	17:28	2:46	20h04m11s	-23°09'41"	144°44'27"	1.000	34.00767
9/ 3/2023	17:01	2:18	20h03m40s	-23°11'26"	137°52'35"	1.000	34.08754
9/10/2023	16:33	1:50	20h03m13s	-23°12'55"	130°59'58"	1.000	34.17807
9/17/2023	16:05	1:22	20h02m51s	-23°14'08"	124°06'39"	1.000	34.27810
9/24/2023	15:37	0:54	20h02m35s	-23°15'03"	117°13'00"	1.000	34.38623
10/ 1/2023	15:09	0:26	20h02m23s	-23°15'41"	110°19'09"	1.000	34.50090
10/ 8/2023	14:42	23:55	20h02m18s	-23°16'00"	103°24'55"	1.000	34.62057
10/15/2023	14:14	23:27	20h02m18s	-23°16'02"	96°30'12"	1.000	34.74366
10/22/2023	13:47	23:00	20h02m25s	-23°15'45"	89°35'16"	1.000	34.86839
10/29/2023	13:20	22:33	20h02m38s	-23°15'12"	82°40'19"	1.000	34.99295
11/ 5/2023	12:52	22:06	20h02m56s	-23°14'21"	75°45'14"	1.000	35.11567
11/12/2023	12:25	21:39	20h03m21s	-23°13'15"	68°49'51"	1.000	35.23490
11/19/2023	11:58	21:12	20h03m51s	-23°11'53"	61°54'24"	1.000	35.34889
11/26/2023	11:31	20:45	20h04m26s	-23°10'18"	54°59'10"	1.000	35.45601
12/ 3/2023	11:04	20:18	20h05m06s	-23°08'31"	48°04'10"	1.000	35.55483
12/10/2023	10:37	19:52	20h05m51s	-23°06'33"	41°09'16"	1.000	35.64405
12/17/2023	10:10	19:25	20h06m39s	-23°04'26"	34°14'44"	1.000	35.72235
12/24/2023	9:43	18:59	20h07m31s	-23°02'12"	27°21'08"	1.000	35.78864
12/31/2023	9:17	18:32	20h08m25s	-22°59'52"	20°29'05"	1.000	35.84210

Planet Apsides Report for 2023

Earth

1/ 3/2023 Perihelion Distance from Sun: 0.98 AU

Meteor Showers Report for 1/ 1/2023 to 12/31/2023

Date	Meteor Shower	ZHR	RA	DEC	Illum. Frac.	Longitude
1/ 3/2023	Quadrantids	80	15h28m	50°	0.91	283°
4/11/2023	Virginids	5	14h04m	-9°	0.69	22°
4/22/2023	Lyrids	12	18h08m	32°	0.07	32°
4/28/2023	alpha-Scorpiids	5	16h32m	-24°	0.58	38°
5/ 5/2023	eta-Aquarids	35	22h20m	-1°	1.00	45°
5/12/2023	alpha-Scorpiids	5	16h04m	-24°	0.49	52°
6/ 9/2023	Ophiuchids	5	17h56m	-23°	0.63	79°
6/20/2023	Ophiuchids	5	17h20m	-20°	0.06	89°
7/ 8/2023	Capricornids	5			0.65	106°
7/15/2023	Capricornids	5	20h44m	-15°	0.04	113°
7/20/2023	alpha-Cygnids	5	21h00m	48°	0.08	118°
7/26/2023	Capricornids	5	21h00m	-15°	0.58	123°
7/29/2023	delta-Aquarids	20	22h36m	-17°	0.87	126°
7/31/2023	Piscis Australids	5	22h40m	-30°	0.98	128°
8/ 2/2023	alpha-Capricornids	5	20h36m	-10°	0.98	130°
8/ 6/2023	iota-Aquarids	8	22h10m	-15°	0.69	134°
8/12/2023	Perseids	75	3h04m	58°	0.12	140°
8/21/2023	alpha-Cygnids	5	21h00m	48°	0.24	148°
9/ 8/2023	Piscids	10	0h36m	7°	0.33	166°
9/21/2023	Piscids	5	0h24m	0°	0.38	178°
10/13/2023	Piscids	??	1h44m	14°	0.01	200°
10/22/2023	Orionids	25	6h24m	15°	0.57	209°
11/ 3/2023	Taurids	8	3h44m	14°	0.66	221°
11/17/2023	Leonids	10	10h08m	22°	0.21	235°
12/ 9/2023	Puppids-Velids	15	9h00m	-48°	0.12	257°
12/14/2023	Geminids	75	7h28m	32°	0.04	262°
12/22/2023	Ursids	5	14h28m	78°	0.80	271°
12/25/2023	Puppids-Velids	15	9h20m	-65°	0.98	274°

Twilight Report for 1/ 1/2023 to 12/31/2023

Date	Sun		Astronomical		Nautical		Civil	
	Rise	Set	Begin	End	Begin	End	Begin	End
1/ 1/2023	7:49	17:10	6:06	18:53	6:40	18:20	7:14	17:46
1/ 8/2023	7:49	17:16	6:07	18:58	6:40	18:25	7:14	17:52
1/15/2023	7:47	17:24	6:06	19:05	6:39	18:32	7:12	17:59
1/22/2023	7:44	17:32	6:04	19:12	6:36	18:39	7:09	18:06
1/29/2023	7:38	17:40	6:00	19:19	6:32	18:47	7:05	18:14
2/ 5/2023	7:31	17:49	5:54	19:26	6:26	18:54	6:58	18:22
2/12/2023	7:23	17:57	5:47	19:34	6:19	19:02	6:51	18:30
2/19/2023	7:14	18:06	5:39	19:41	6:10	19:10	6:42	18:38
2/26/2023	7:04	18:14	5:29	19:49	6:01	19:17	6:32	18:46
3/ 5/2023	6:54	18:22	5:19	19:56	5:51	19:25	6:22	18:53
3/12/2023	6:43	18:29	5:08	20:04	5:39	19:32	6:11	19:01
3/19/2023	6:31	18:37	4:56	20:12	5:28	19:40	6:00	19:08
3/26/2023	6:20	18:44	4:43	20:21	5:16	19:48	5:48	19:16
4/ 2/2023	6:08	18:52	4:30	20:30	5:04	19:56	5:36	19:23
4/ 9/2023	5:57	18:59	4:17	20:39	4:51	20:04	5:25	19:31
4/16/2023	5:46	19:06	4:04	20:48	4:39	20:13	5:13	19:39
4/23/2023	5:36	19:13	3:51	20:59	4:28	20:22	5:02	19:47
4/30/2023	5:26	19:21	3:38	21:09	4:16	20:30	4:52	19:55
5/ 7/2023	5:18	19:28	3:26	21:20	4:06	20:40	4:43	20:03

Midway, UT (JMC) Latitude: 40°30'43" N Longitude: 111°28'40" W
Local Time = UT - 7.00 hours Elevation: 1706 meters Year 2023
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5/14/2023	5:10	19:35	3:14	21:31	3:57	20:48	4:35	20:10
5/21/2023	5:04	19:41	3:04	21:41	3:49	20:57	4:28	20:18
5/28/2023	5:00	19:47	2:56	21:51	3:42	21:05	4:23	20:24
6/ 4/2023	4:57	19:52	2:50	21:59	3:38	21:11	4:19	20:30
6/11/2023	4:55	19:56	2:46	22:05	3:35	21:16	4:17	20:35
6/18/2023	4:55	19:59	2:45	22:09	3:34	21:20	4:17	20:38
6/25/2023	4:57	20:01	2:46	22:11	3:36	21:21	4:18	20:39
7/ 2/2023	5:00	20:00	2:51	22:09	3:40	21:20	4:22	20:38
7/ 9/2023	5:04	19:58	2:57	22:05	3:45	21:17	4:26	20:36
7/16/2023	5:09	19:55	3:06	21:58	3:52	21:12	4:32	20:32
7/23/2023	5:15	19:50	3:15	21:49	3:59	21:05	4:38	20:26
7/30/2023	5:21	19:43	3:26	21:39	4:08	20:57	4:46	20:19
8/ 6/2023	5:28	19:35	3:36	21:27	4:16	20:47	4:53	20:10
8/13/2023	5:35	19:26	3:46	21:15	4:25	20:36	5:01	20:00
8/20/2023	5:41	19:17	3:56	21:02	4:33	20:25	5:08	19:50
8/27/2023	5:48	19:06	4:06	20:48	4:42	20:13	5:15	19:39
9/ 3/2023	5:55	18:55	4:15	20:35	4:50	20:00	5:23	19:27
9/10/2023	6:02	18:43	4:24	20:21	4:57	19:48	5:30	19:15
9/17/2023	6:08	18:32	4:32	20:08	5:05	19:35	5:37	19:03
9/24/2023	6:15	18:20	4:40	19:55	5:12	19:23	5:44	18:51
10/ 1/2023	6:22	18:08	4:47	19:43	5:19	19:11	5:51	18:40
10/ 8/2023	6:29	17:57	4:55	19:32	5:26	19:00	5:58	18:28
10/15/2023	6:37	17:46	5:02	19:21	5:33	18:49	6:05	18:18
10/22/2023	6:44	17:36	5:09	19:11	5:41	18:40	6:12	18:08
10/29/2023	6:52	17:26	5:16	19:03	5:48	18:31	6:20	17:59
11/ 5/2023	7:00	17:18	5:23	18:55	5:55	18:24	6:27	17:51
11/12/2023	7:09	17:11	5:30	18:50	6:02	18:17	6:35	17:45
11/19/2023	7:17	17:05	5:37	18:45	6:09	18:13	6:43	17:40
11/26/2023	7:25	17:02	5:44	18:42	6:16	18:10	6:50	17:36
12/ 3/2023	7:32	16:59	5:50	18:41	6:23	18:08	6:57	17:35
12/10/2023	7:38	16:59	5:55	18:42	6:29	18:09	7:03	17:35
12/17/2023	7:43	17:01	6:00	18:44	6:33	18:11	7:08	17:36
12/24/2023	7:47	17:04	6:04	18:47	6:37	18:14	7:11	17:40
12/31/2023	7:49	17:09	6:06	18:52	6:39	18:19	7:13	17:45