

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

Calendar Report for 1/ 1/2020 to 12/31/2020

January 2020

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

February 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 SR: 7:36 SS: 17:44 MR: 11:38 MS: 0:22 FQ: 18:43
2 SR: 7:35 SS: 17:45 MR: 12:06 MS: 1:21	3 SR: 7:34 SS: 17:46 MR: 12:39 MS: 2:23	4 SR: 7:33 SS: 17:47 MR: 13:19 MS: 3:26	5 SR: 7:32 SS: 17:48 MR: 14:06 MS: 4:29	6 SR: 7:31 SS: 17:50 MR: 15:02 MS: 5:30	7 SR: 7:30 SS: 17:51 MR: 16:08 MS: 6:27	8 SR: 7:28 SS: 17:52 MR: 17:20 MS: 7:17
9 SR: 7:27 SS: 17:53 MR: 18:35 MS: 8:01 FM: 0:35	10 SR: 7:26 SS: 17:55 MR: 19:51 MS: 8:40	11 SR: 7:25 SS: 17:56 MR: 21:07 MS: 9:14	12 SR: 7:24 SS: 17:57 MR: 22:20 MS: 9:45	13 SR: 7:23 SS: 17:58 MR: 23:32 MS: 10:16	14 SR: 7:21 SS: 17:59 MR: None MS: 10:48	15 SR: 7:20 SS: 18:01 MR: 0:43 MS: 11:22 LQ: 15:19
16 SR: 7:19 SS: 18:02 MR: 1:52 MS: 11:59	17 SR: 7:17 SS: 18:03 MR: 2:59 MS: 12:42	18 SR: 7:16 SS: 18:04 MR: 4:01 MS: 13:30	19 SR: 7:15 SS: 18:05 MR: 4:56 MS: 14:23	20 SR: 7:13 SS: 18:07 MR: 5:45 MS: 15:20	21 SR: 7:12 SS: 18:08 MR: 6:27 MS: 16:20	22 SR: 7:11 SS: 18:09 MR: 7:03 MS: 17:20
23 SR: 7:09 SS: 18:10 MR: 7:34 MS: 18:20 NM: 8:34	24 SR: 7:08 SS: 18:11 MR: 8:01 MS: 19:19	25 SR: 7:06 SS: 18:12 MR: 8:27 MS: 20:17	26 SR: 7:05 SS: 18:14 MR: 8:51 MS: 21:15	27 SR: 7:03 SS: 18:15 MR: 9:15 MS: 22:13	28 SR: 7:02 SS: 18:16 MR: 9:39 MS: 23:11	29 SR: 7:00 SS: 18:17 MR: 10:06 MS: None

March 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 SR: 6:59 SS: 18:18 MR: 10:37 MS: 0:11	2 SR: 6:57 SS: 18:19 MR: 11:12 MS: 1:12 FQ: 12:59	3 SR: 6:56 SS: 18:20 MR: 11:54 MS: 2:14	4 SR: 6:54 SS: 18:21 MR: 12:45 MS: 3:14	5 SR: 6:53 SS: 18:23 MR: 13:44 MS: 4:12	6 SR: 6:51 SS: 18:24 MR: 14:52 MS: 5:04	7 SR: 6:49 SS: 18:25 MR: 16:06 MS: 5:51
8 SR: 6:48 SS: 18:26 MR: 17:22 MS: 6:31	9 SR: 6:46 SS: 18:27 MR: 18:40 MS: 7:08 FM: 10:49	10 SR: 6:45 SS: 18:28 MR: 19:57 MS: 7:41	11 SR: 6:43 SS: 18:29 MR: 21:12 MS: 8:13	12 SR: 6:41 SS: 18:30 MR: 22:27 MS: 8:45	13 SR: 6:40 SS: 18:31 MR: 23:40 MS: 9:19	14 SR: 6:38 SS: 18:32 MR: None MS: 9:56
15 SR: 6:37 SS: 18:33 MR: 0:50 MS: 10:38	16 SR: 6:35 SS: 18:34 MR: 1:55 MS: 11:25 LQ: 2:36	17 SR: 6:33 SS: 18:36 MR: 2:54 MS: 12:18	18 SR: 6:32 SS: 18:37 MR: 3:45 MS: 13:14	19 SR: 6:30 SS: 18:38 MR: 4:28 MS: 14:14 MEQ:20:52	20 SR: 6:28 SS: 18:39 MR: 5:05 MS: 15:14	21 SR: 6:27 SS: 18:40 MR: 5:37 MS: 16:13
22 SR: 6:25 SS: 18:41 MR: 6:05 MS: 17:12	23 SR: 6:23 SS: 18:42 MR: 6:31 MS: 18:11	24 SR: 6:22 SS: 18:43 MR: 6:55 MS: 19:09 NM: 2:30	25 SR: 6:20 SS: 18:44 MR: 7:19 MS: 20:06	26 SR: 6:18 SS: 18:45 MR: 7:43 MS: 21:05	27 SR: 6:17 SS: 18:46 MR: 8:09 MS: 22:04	28 SR: 6:15 SS: 18:47 MR: 8:37 MS: 23:05
29 SR: 6:14 SS: 18:48 MR: 9:10 MS: None	30 SR: 6:12 SS: 18:49 MR: 9:49 MS: 0:06	31 SR: 6:10 SS: 18:50 MR: 10:35 MS: 1:06				

April 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 SR: 6:09 SS: 18:51 MR: 11:30 MS: 2:03 FQ: 3:22	2 SR: 6:07 SS: 18:52 MR: 12:32 MS: 2:56	3 SR: 6:05 SS: 18:53 MR: 13:41 MS: 3:43	4 SR: 6:04 SS: 18:54 MR: 14:54 MS: 4:24
5 SR: 6:02 SS: 18:55 MR: 16:10 MS: 5:01	6 SR: 6:01 SS: 18:56 MR: 17:27 MS: 5:35	7 SR: 5:59 SS: 18:57 MR: 18:44 MS: 6:07 FM: 19:36	8 SR: 5:57 SS: 18:58 MR: 20:01 MS: 6:39	9 SR: 5:56 SS: 19:00 MR: 21:17 MS: 7:12	10 SR: 5:54 SS: 19:01 MR: 22:31 MS: 7:49	11 SR: 5:53 SS: 19:02 MR: 23:42 MS: 8:30
12 SR: 5:51 SS: 19:03 MR: None MS: 9:17	13 SR: 5:50 SS: 19:04 MR: 0:45 MS: 10:09	14 SR: 5:48 SS: 19:05 MR: 1:41 MS: 11:06 LQ: 15:57	15 SR: 5:47 SS: 19:06 MR: 2:28 MS: 12:05	16 SR: 5:45 SS: 19:07 MR: 3:08 MS: 13:06	17 SR: 5:44 SS: 19:08 MR: 3:41 MS: 14:06	18 SR: 5:42 SS: 19:09 MR: 4:10 MS: 15:06
19 SR: 5:41 SS: 19:10 MR: 4:36 MS: 16:04	20 SR: 5:39 SS: 19:11 MR: 5:00 MS: 17:02	21 SR: 5:38 SS: 19:12 MR: 5:23 MS: 18:00	22 SR: 5:36 SS: 19:13 MR: 5:47 MS: 18:59 NM: 19:27	23 SR: 5:35 SS: 19:14 MR: 6:12 MS: 19:58	24 SR: 5:33 SS: 19:15 MR: 6:40 MS: 20:59	25 SR: 5:32 SS: 19:16 MR: 7:11 MS: 22:00
26 SR: 5:31 SS: 19:17 MR: 7:48 MS: 23:01	27 SR: 5:29 SS: 19:18 MR: 8:32 MS: 23:59	28 SR: 5:28 SS: 19:19 MR: 9:23 MS: None	29 SR: 5:27 SS: 19:20 MR: 10:21 MS: 0:52	30 SR: 5:25 SS: 19:21 MR: 11:26 MS: 1:40 FQ: 13:39		

May 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1 SR: 5:24 SS: 19:22 MR: 12:36 MS: 2:22	2 SR: 5:23 SS: 19:23 MR: 13:48 MS: 2:59
3 SR: 5:22 SS: 19:24 MR: 15:02 MS: 3:33	4 SR: 5:21 SS: 19:25 MR: 16:16 MS: 4:04	5 SR: 5:19 SS: 19:26 MR: 17:32 MS: 4:35	6 SR: 5:18 SS: 19:27 MR: 18:49 MS: 5:06	7 SR: 5:17 SS: 19:28 MR: 20:05 MS: 5:41 FM: 3:46	8 SR: 5:16 SS: 19:29 MR: 21:19 MS: 6:19	9 SR: 5:15 SS: 19:30 MR: 22:29 MS: 7:04
10 SR: 5:14 SS: 19:31 MR: 23:30 MS: 7:55	11 SR: 5:13 SS: 19:32 MR: None MS: 8:52	12 SR: 5:12 SS: 19:33 MR: 0:23 MS: 9:52	13 SR: 5:11 SS: 19:34 MR: 1:06 MS: 10:55	14 SR: 5:10 SS: 19:35 MR: 1:43 MS: 11:56 LQ: 7:03	15 SR: 5:09 SS: 19:36 MR: 2:13 MS: 12:57	16 SR: 5:08 SS: 19:37 MR: 2:40 MS: 13:56
17 SR: 5:07 SS: 19:38 MR: 3:05 MS: 14:54	18 SR: 5:06 SS: 19:39 MR: 3:28 MS: 15:52	19 SR: 5:05 SS: 19:40 MR: 3:52 MS: 16:50	20 SR: 5:05 SS: 19:41 MR: 4:16 MS: 17:50	21 SR: 5:04 SS: 19:42 MR: 4:43 MS: 18:51	22 SR: 5:03 SS: 19:43 MR: 5:13 MS: 19:53 NM: 10:40	23 SR: 5:02 SS: 19:44 MR: 5:48 MS: 20:54
24 SR: 5:02 SS: 19:45 MR: 6:29 MS: 21:54	25 SR: 5:01 SS: 19:45 MR: 7:18 MS: 22:50	26 SR: 5:00 SS: 19:46 MR: 8:15 MS: 23:40	27 SR: 5:00 SS: 19:47 MR: 9:18 MS: None	28 SR: 4:59 SS: 19:48 MR: 10:26 MS: 0:23	29 SR: 4:59 SS: 19:49 MR: 11:36 MS: 1:01 FQ: 20:30	30 SR: 4:58 SS: 19:49 MR: 12:47 MS: 1:35
31 SR: 4:58 SS: 19:50 MR: 13:59 MS: 2:05						

June 2020

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

July 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 SR: 4:59 SS: 20:00 MR: 16:36 MS: 2:10	2 SR: 5:00 SS: 20:00 MR: 17:48 MS: 2:47	3 SR: 5:01 SS: 20:00 MR: 18:56 MS: 3:31	4 SR: 5:01 SS: 20:00 MR: 19:58 MS: 4:21 FM: 21:45
5 SR: 5:02 SS: 19:59 MR: 20:51 MS: 5:19	6 SR: 5:02 SS: 19:59 MR: 21:35 MS: 6:21	7 SR: 5:03 SS: 19:59 MR: 22:12 MS: 7:26	8 SR: 5:04 SS: 19:58 MR: 22:43 MS: 8:29	9 SR: 5:04 SS: 19:58 MR: 23:10 MS: 9:32	10 SR: 5:05 SS: 19:58 MR: 23:35 MS: 10:32	11 SR: 5:06 SS: 19:57 MR: 23:58 MS: 11:31
12 SR: 5:06 SS: 19:57 MR: None MS: 12:29 LQ: 16:31	13 SR: 5:07 SS: 19:56 MR: 0:21 MS: 13:27	14 SR: 5:08 SS: 19:55 MR: 0:46 MS: 14:27	15 SR: 5:09 SS: 19:55 MR: 1:13 MS: 15:27	16 SR: 5:09 SS: 19:54 MR: 1:44 MS: 16:29	17 SR: 5:10 SS: 19:54 MR: 2:20 MS: 17:31	18 SR: 5:11 SS: 19:53 MR: 3:04 MS: 18:32
19 SR: 5:12 SS: 19:52 MR: 3:56 MS: 19:28	20 SR: 5:13 SS: 19:51 MR: 4:56 MS: 20:18 NM: 10:34	21 SR: 5:14 SS: 19:51 MR: 6:03 MS: 21:01	22 SR: 5:15 SS: 19:50 MR: 7:15 MS: 21:38	23 SR: 5:15 SS: 19:49 MR: 8:27 MS: 22:11	24 SR: 5:16 SS: 19:48 MR: 9:40 MS: 22:41	25 SR: 5:17 SS: 19:47 MR: 10:52 MS: 23:10
26 SR: 5:18 SS: 19:46 MR: 12:03 MS: 23:40	27 SR: 5:19 SS: 19:45 MR: 13:15 MS: None FQ: 5:34	28 SR: 5:20 SS: 19:44 MR: 14:26 MS: 0:11	29 SR: 5:21 SS: 19:43 MR: 15:37 MS: 0:46	30 SR: 5:22 SS: 19:42 MR: 16:45 MS: 1:27	31 SR: 5:23 SS: 19:41 MR: 17:48 MS: 2:14	

August 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1 SR: 5:24 SS: 19:40 MR: 18:43 MS: 3:08
2 SR: 5:25 SS: 19:39 MR: 19:30 MS: 4:08	3 SR: 5:26 SS: 19:38 MR: 20:09 MS: 5:11 FM: 9:00	4 SR: 5:27 SS: 19:37 MR: 20:42 MS: 6:15	5 SR: 5:27 SS: 19:36 MR: 21:11 MS: 7:18	6 SR: 5:28 SS: 19:34 MR: 21:36 MS: 8:20	7 SR: 5:29 SS: 19:33 MR: 22:00 MS: 9:19	8 SR: 5:30 SS: 19:32 MR: 22:23 MS: 10:18
9 SR: 5:31 SS: 19:31 MR: 22:47 MS: 11:16	10 SR: 5:32 SS: 19:29 MR: 23:13 MS: 12:15	11 SR: 5:33 SS: 19:28 MR: 23:41 MS: 13:14 LQ: 9:48	12 SR: 5:34 SS: 19:27 MR: None MS: 14:15	13 SR: 5:35 SS: 19:25 MR: 0:15 MS: 15:17	14 SR: 5:36 SS: 19:24 MR: 0:55 MS: 16:17	15 SR: 5:37 SS: 19:23 MR: 1:42 MS: 17:15
16 SR: 5:38 SS: 19:21 MR: 2:39 MS: 18:08	17 SR: 5:39 SS: 19:20 MR: 3:44 MS: 18:54	18 SR: 5:40 SS: 19:18 MR: 4:54 MS: 19:34 NM: 19:42	19 SR: 5:41 SS: 19:17 MR: 6:08 MS: 20:10	20 SR: 5:42 SS: 19:15 MR: 7:23 MS: 20:42	21 SR: 5:43 SS: 19:14 MR: 8:37 MS: 21:12	22 SR: 5:44 SS: 19:12 MR: 9:51 MS: 21:42
23 SR: 5:45 SS: 19:11 MR: 11:05 MS: 22:13	24 SR: 5:46 SS: 19:09 MR: 12:17 MS: 22:47	25 SR: 5:47 SS: 19:08 MR: 13:29 MS: 23:26 FQ: 10:59	26 SR: 5:48 SS: 19:06 MR: 14:38 MS: None	27 SR: 5:49 SS: 19:05 MR: 15:42 MS: 0:11	28 SR: 5:50 SS: 19:03 MR: 16:39 MS: 1:02	29 SR: 5:51 SS: 19:02 MR: 17:28 MS: 2:00
30 SR: 5:52 SS: 19:00 MR: 18:09 MS: 3:01	31 SR: 5:53 SS: 18:59 MR: 18:43 MS: 4:04					

September 2020

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

October 2020

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1 SR: 6:23 SS: 18:07 MR: 18:30 MS: 6:01 FM: 14:07	2 SR: 6:24 SS: 18:05 MR: 18:53 MS: 7:00	3 SR: 6:25 SS: 18:04 MR: 19:17 MS: 7:58
4 SR: 6:26 SS: 18:02 MR: 19:43 MS: 8:57	5 SR: 6:27 SS: 18:01 MR: 20:12 MS: 9:56	6 SR: 6:28 SS: 17:59 MR: 20:46 MS: 10:56	7 SR: 6:29 SS: 17:57 MR: 21:25 MS: 11:56	8 SR: 6:30 SS: 17:56 MR: 22:12 MS: 12:54	9 SR: 6:31 SS: 17:54 MR: 23:07 MS: 13:48 LQ: 17:41	10 SR: 6:32 SS: 17:53 MR: None MS: 14:37
11 SR: 6:33 SS: 17:51 MR: 0:10 MS: 15:21	12 SR: 6:34 SS: 17:49 MR: 1:18 MS: 15:59	13 SR: 6:35 SS: 17:48 MR: 2:31 MS: 16:33	14 SR: 6:36 SS: 17:46 MR: 3:45 MS: 17:05	15 SR: 6:38 SS: 17:45 MR: 5:01 MS: 17:35	16 SR: 6:39 SS: 17:43 MR: 6:18 MS: 18:06 NM: 12:32	17 SR: 6:40 SS: 17:42 MR: 7:36 MS: 18:39
18 SR: 6:41 SS: 17:40 MR: 8:54 MS: 19:16	19 SR: 6:42 SS: 17:39 MR: 10:11 MS: 19:59	20 SR: 6:43 SS: 17:38 MR: 11:24 MS: 20:48	21 SR: 6:44 SS: 17:36 MR: 12:29 MS: 21:44	22 SR: 6:45 SS: 17:35 MR: 13:25 MS: 22:45	23 SR: 6:46 SS: 17:33 MR: 14:11 MS: 23:48 FQ: 6:24	24 SR: 6:47 SS: 17:32 MR: 14:49 MS: None
25 SR: 6:49 SS: 17:31 MR: 15:21 MS: 0:52	26 SR: 6:50 SS: 17:29 MR: 15:48 MS: 1:54	27 SR: 6:51 SS: 17:28 MR: 16:13 MS: 2:55	28 SR: 6:52 SS: 17:27 MR: 16:36 MS: 3:54	29 SR: 6:53 SS: 17:25 MR: 16:58 MS: 4:53	30 SR: 6:54 SS: 17:24 MR: 17:22 MS: 5:51	31 SR: 6:55 SS: 17:23 MR: 17:46 MS: 6:50 FM: 7:51

November 2020

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

December 2020

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

Midway, UT (JMC) Latitude: 40°30'53" N Longitude: 111°27'50" W
 Local Time = UT - 7.00 hours Elevation: 1708 meters Year 2020
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Seasons Report for 2020

MEQ: 3/19/2020 20:52 Winter Length: 88.99 days
 JSO: 6/20/2020 14:43 Spring Length: 92.74 days
 SEQ: 9/22/2020 6:30 Summer Length: 93.66 days
 DSO: 12/21/2020 2:59 Autumn Length: 89.85 days

Dates of Easter Report for 2020

4/12/2020

Lunar Eclipse Report for 2020

Solar Eclipse Report for 2020

Solar eclipse on 6/20/2020
 Sun rise: 4:55
 Sun set: 20:00
 Time of maximum eclipse: 23:40
 Eclipse is annular
 Eclipse is visible in the northern hemisphere

Solar eclipse on 12/14/2020
 Sun rise: 7:42
 Sun set: 17:00
 Time of maximum eclipse: 9:16
 Eclipse is total
 Eclipse is visible in the southern 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/ 1/2020 to 12/31/2020

Mercury

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2020	7:35	16:39	18h19m19s	-24°38'09"	5°45'37"	0.989	1.43404
1/ 8/2020	7:55	17:03	19h08m24s	-24°18'24"	2°23'40"	0.998	1.43660
1/15/2020	8:10	17:32	19h58m05s	-22°46'43"	3°27'20"	0.995	1.41054
1/22/2020	8:20	18:06	20h47m34s	-19°59'47"	7°45'44"	0.971	1.35108
1/29/2020	8:24	18:42	21h35m23s	-16°00'11"	12°30'30"	0.902	1.24996
2/ 5/2020	8:20	19:14	22h18m01s	-11°08'28"	16°42'28"	0.740	1.09936
2/12/2020	8:04	19:28	22h47m16s	-6°30'37"	18°04'12"	0.453	0.90925
2/19/2020	7:31	19:06	22h51m11s	-4°10'02"	13°04'35"	0.141	0.73181
2/26/2020	6:46	18:08	22h29m17s	-5°29'18"	3°43'24"	0.008	0.63730
3/ 4/2020	6:07	17:08	22h05m21s	-8°39'24"	13°52'46"	0.100	0.64539
3/11/2020	5:43	16:31	21h59m48s	-10°52'32"	22°40'12"	0.270	0.71849
3/18/2020	5:30	16:17	22h12m34s	-11°19'48"	26°50'14"	0.421	0.81656
3/25/2020	5:23	16:20	22h37m15s	-10°12'23"	27°45'51"	0.540	0.91938
4/ 1/2020	5:19	16:35	23h09m10s	-7°46'39"	26°31'25"	0.635	1.01937

4/ 8/2020	5:16	16:57	23h45m53s	-4°14'47"	23°40'09"	0.720	1.11374
4/15/2020	5:14	17:27	0h26m39s	0°13'55"	19°25'23"	0.803	1.20008
4/22/2020	5:14	18:04	1h11m48s	5°29'49"	13°49'02"	0.889	1.27298
4/29/2020	5:17	18:48	2h02m22s	11°17'25"	6°49'44"	0.968	1.32024
5/ 6/2020	5:24	19:40	2h59m04s	17°03'57"	1°19'32"	0.999	1.32064
5/13/2020	5:39	20:33	3h59m47s	21°51'16"	9°40'37"	0.918	1.25543
5/20/2020	5:57	21:14	4h58m27s	24°45'24"	16°43'37"	0.747	1.13460
5/27/2020	6:16	21:38	5h49m02s	25°39'35"	21°27'53"	0.564	0.99116
6/ 3/2020	6:29	21:44	6h28m04s	25°02'23"	23°31'56"	0.405	0.85134
6/10/2020	6:33	21:32	6h53m25s	23°29'23"	22°39'20"	0.265	0.72894
6/17/2020	6:23	21:03	7h03m20s	21°33'56"	18°27'42"	0.142	0.63295
6/24/2020	5:56	20:20	6h57m37s	19°47'20"	11°00'23"	0.045	0.57343
7/ 1/2020	5:16	19:32	6h41m18s	18°39'10"	4°26'12"	0.007	0.56224
7/ 8/2020	4:34	18:51	6h26m17s	18°30'44"	11°07'02"	0.053	0.60740
7/15/2020	4:02	18:28	6h24m31s	19°20'22"	17°37'08"	0.176	0.70717
7/22/2020	3:48	18:26	6h41m23s	20°37'01"	20°07'03"	0.359	0.85150
7/29/2020	3:54	18:39	7h17m06s	21°28'10"	18°28'13"	0.591	1.02244
8/ 5/2020	4:21	19:01	8h08m12s	20°51'59"	13°19'41"	0.825	1.18741
8/12/2020	5:04	19:20	9h06m29s	18°11'54"	6°15'20"	0.969	1.30554
8/19/2020	5:49	19:30	10h02m50s	13°50'43"	2°15'53"	0.997	1.36008
8/26/2020	6:31	19:33	10h53m19s	8°38'58"	8°13'53"	0.965	1.36371
9/ 2/2020	7:06	19:31	11h38m06s	3°14'24"	13°43'27"	0.914	1.33372
9/ 9/2020	7:37	19:25	12h18m26s	-2°01'40"	18°15'36"	0.858	1.28078
9/16/2020	8:03	19:17	12h55m21s	-6°56'35"	21°51'19"	0.797	1.20963
9/23/2020	8:24	19:08	13h29m10s	-11°20'05"	24°26'59"	0.724	1.12173
9/30/2020	8:39	18:56	13h59m05s	-14°59'57"	25°45'54"	0.628	1.01751
10/ 7/2020	8:43	18:42	14h22m20s	-17°36'12"	25°04'45"	0.493	0.89916
10/14/2020	8:27	18:19	14h32m36s	-18°29'39"	20°49'04"	0.299	0.77678
10/21/2020	7:37	17:46	14h20m46s	-16°30'34"	10°33'44"	0.075	0.68345
10/28/2020	6:22	17:08	13h51m40s	-11°38'11"	4°57'58"	0.019	0.68612
11/ 4/2020	5:34	16:41	13h38m36s	-8°23'07"	16°13'06"	0.279	0.81613
11/11/2020	5:29	16:28	13h55m15s	-9°21'33"	19°05'37"	0.599	1.00119
11/18/2020	5:48	16:23	14h28m50s	-12°37'30"	17°15'33"	0.803	1.16701
11/25/2020	6:15	16:23	15h09m16s	-16°22'29"	13°49'02"	0.908	1.29118
12/ 2/2020	6:44	16:26	15h52m50s	-19°46'52"	9°59'34"	0.961	1.37574
12/ 9/2020	7:13	16:33	16h38m24s	-22°29'08"	6°09'52"	0.987	1.42658
12/16/2020	7:41	16:46	17h25m40s	-24°17'38"	2°32'58"	0.998	1.44784
12/23/2020	8:05	17:05	18h14m19s	-25°03'55"	2°19'54"	0.998	1.44115
12/30/2020	8:25	17:29	19h03m50s	-24°41'00"	6°05'07"	0.986	1.40551

Venus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2020	9:57	19:56	21h09m46s	-18°15'49"	34°26'48"	0.822	1.27790
1/ 8/2020	9:53	20:13	21h43m38s	-15°30'19"	35°51'56"	0.804	1.23776
1/15/2020	9:46	20:29	22h16m20s	-12°25'07"	37°14'24"	0.785	1.19620
1/22/2020	9:38	20:45	22h47m59s	-9°04'40"	38°33'47"	0.765	1.15328
1/29/2020	9:29	21:00	23h18m45s	-5°33'23"	39°49'48"	0.744	1.10893
2/ 5/2020	9:19	21:15	23h48m47s	-1°55'40"	41°02'01"	0.721	1.06312
2/12/2020	9:08	21:29	0h18m16s	1°44'15"	42°09'34"	0.697	1.01594
2/19/2020	8:57	21:43	0h47m21s	5°22'21"	43°11'26"	0.671	0.96747
2/26/2020	8:46	21:57	1h16m13s	8°54'50"	44°06'40"	0.644	0.91773
3/ 4/2020	8:35	22:10	1h44m56s	12°17'49"	44°53'56"	0.614	0.86674
3/11/2020	8:24	22:23	2h13m31s	15°27'36"	45°31'10"	0.583	0.81465
3/18/2020	8:14	22:35	2h41m56s	18°20'47"	45°55'43"	0.548	0.76170

3/25/2020	8:04	22:46	3h10m00s	20°54'24"	46°04'34"	0.511	0.70806
4/ 1/2020	7:54	22:54	3h37m25s	23°05'51"	45°53'36"	0.471	0.65396
4/ 8/2020	7:45	23:01	4h03m39s	24°53'07"	45°16'50"	0.427	0.59976
4/15/2020	7:35	23:03	4h27m58s	26°15'04"	44°06'16"	0.379	0.54606
4/22/2020	7:24	23:00	4h49m26s	27°11'26"	42°11'39"	0.326	0.49353
4/29/2020	7:11	22:51	5h06m51s	27°42'24"	39°19'16"	0.267	0.44307
5/ 6/2020	6:55	22:35	5h18m40s	27°47'54"	35°10'43"	0.203	0.39601
5/13/2020	6:33	22:08	5h23m15s	27°26'27"	29°24'55"	0.136	0.35433
5/20/2020	6:06	21:31	5h19m28s	26°34'17"	21°44'50"	0.072	0.32058
5/27/2020	5:33	20:43	5h07m36s	25°07'11"	12°10'24"	0.022	0.29774
6/ 3/2020	4:57	19:49	4h50m27s	23°08'20"	1°20'11"	0.000	0.28864
6/10/2020	4:22	18:56	4h33m15s	20°57'17"	9°49'26"	0.014	0.29474
6/17/2020	3:50	18:10	4h21m02s	19°03'45"	19°44'00"	0.059	0.31509
6/24/2020	3:23	17:34	4h16m20s	17°48'30"	27°47'23"	0.121	0.34696
7/ 1/2020	3:01	17:09	4h19m10s	17°15'23"	33°54'50"	0.187	0.38729
7/ 8/2020	2:43	16:52	4h28m35s	17°17'10"	38°21'26"	0.250	0.43353
7/15/2020	2:29	16:42	4h43m21s	17°42'38"	41°27'32"	0.309	0.48364
7/22/2020	2:18	16:36	5h02m23s	18°20'28"	43°32'11"	0.362	0.53613
7/29/2020	2:10	16:34	5h24m48s	19°00'58"	44°50'22"	0.411	0.59004
8/ 5/2020	2:05	16:34	5h49m55s	19°36'14"	45°32'47"	0.455	0.64473
8/12/2020	2:04	16:36	6h17m15s	19°59'46"	45°47'26"	0.495	0.69967
8/19/2020	2:05	16:38	6h46m18s	20°06'27"	45°40'35"	0.533	0.75439
8/26/2020	2:09	16:39	7h16m38s	19°52'33"	45°16'55"	0.567	0.80861
9/ 2/2020	2:15	16:40	7h47m52s	19°15'38"	44°39'35"	0.600	0.86216
9/ 9/2020	2:23	16:40	8h19m40s	18°14'23"	43°51'00"	0.630	0.91486
9/16/2020	2:34	16:39	8h51m45s	16°48'39"	42°53'24"	0.659	0.96648
9/23/2020	2:45	16:36	9h23m52s	14°59'25"	41°48'27"	0.686	1.01687
9/30/2020	2:58	16:32	9h55m52s	12°48'33"	40°37'17"	0.712	1.06596
10/ 7/2020	3:11	16:27	10h27m40s	10°18'26"	39°20'47"	0.737	1.11370
10/14/2020	3:25	16:21	10h59m16s	7°32'03"	37°59'55"	0.760	1.15993
10/21/2020	3:39	16:15	11h30m43s	4°32'54"	36°35'33"	0.782	1.20452
10/28/2020	3:54	16:08	12h02m06s	1°24'43"	35°08'09"	0.803	1.24745
11/ 4/2020	4:09	16:01	12h33m36s	-1°48'40"	33°38'07"	0.822	1.28872
11/11/2020	4:24	15:54	13h05m22s	-5°03'13"	32°05'59"	0.841	1.32824
11/18/2020	4:40	15:47	13h37m35s	-8°14'40"	30°32'17"	0.858	1.36590
11/25/2020	4:56	15:42	14h10m26s	-11°18'34"	28°57'17"	0.874	1.40169
12/ 2/2020	5:13	15:38	14h44m03s	-14°10'27"	27°21'07"	0.889	1.43566
12/ 9/2020	5:29	15:35	15h18m35s	-16°45'50"	25°44'08"	0.903	1.46778
12/16/2020	5:46	15:35	15h54m05s	-19°00'10"	24°06'40"	0.915	1.49799
12/23/2020	6:02	15:36	16h30m31s	-20°49'11"	22°28'48"	0.927	1.52626
12/30/2020	6:17	15:41	17h07m45s	-22°09'04"	20°50'32"	0.938	1.55269

Mars

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2020	4:37	14:22	15h44m55s	-19°26'44"	41°37'27"	0.956	2.18444
1/ 8/2020	4:33	14:10	16h04m29s	-20°29'25"	44°02'37"	0.951	2.13336
1/15/2020	4:29	13:58	16h24m23s	-21°24'06"	46°26'33"	0.946	2.08084
1/22/2020	4:25	13:48	16h44m35s	-22°10'12"	48°49'13"	0.940	2.02700
1/29/2020	4:20	13:38	17h05m02s	-22°47'13"	51°10'32"	0.935	1.97202
2/ 5/2020	4:15	13:30	17h25m43s	-23°14'42"	53°30'08"	0.930	1.91614
2/12/2020	4:10	13:22	17h46m35s	-23°32'21"	55°47'46"	0.924	1.85964
2/19/2020	4:04	13:15	18h07m35s	-23°39'54"	58°03'28"	0.918	1.80265
2/26/2020	3:57	13:08	18h28m39s	-23°37'14"	60°17'17"	0.912	1.74531
3/ 4/2020	3:50	13:03	18h49m43s	-23°24'23"	62°29'01"	0.907	1.68787

3/11/2020	3:41	12:58	19h10m45s	-23°01'27"	64°38'27"	0.901	1.63056
3/18/2020	3:32	12:54	19h31m41s	-22°28'40"	66°45'44"	0.895	1.57350
3/25/2020	3:23	12:50	19h52m28s	-21°46'25"	68°51'09"	0.890	1.51679
4/ 1/2020	3:12	12:46	20h13m03s	-20°55'13"	70°54'44"	0.884	1.46062
4/ 8/2020	3:01	12:43	20h33m23s	-19°55'38"	72°56'26"	0.879	1.40517
4/15/2020	2:49	12:40	20h53m27s	-18°48'17"	74°56'29"	0.874	1.35054
4/22/2020	2:36	12:37	21h13m15s	-17°33'58"	76°55'29"	0.869	1.29673
4/29/2020	2:23	12:34	21h32m43s	-16°13'32"	78°53'51"	0.864	1.24387
5/ 6/2020	2:09	12:31	21h51m51s	-14°47'52"	80°51'44"	0.860	1.19209
5/13/2020	1:54	12:28	22h10m39s	-13°17'47"	82°49'37"	0.856	1.14142
5/20/2020	1:40	12:24	22h29m06s	-11°44'19"	84°48'25"	0.852	1.09182
5/27/2020	1:24	12:21	22h47m12s	-10°08'31"	86°49'04"	0.849	1.04332
6/ 3/2020	1:09	12:16	23h04m54s	-8°31'25"	88°52'09"	0.847	0.99601
6/10/2020	0:53	12:12	23h22m14s	-6°53'56"	90°58'26"	0.845	0.94988
6/17/2020	0:37	12:06	23h39m08s	-5°17'10"	93°09'24"	0.844	0.90483
6/24/2020	0:20	12:01	23h55m34s	-3°42'17"	95°26'40"	0.844	0.86086
7/ 1/2020	0:03	11:54	0h11m28s	-2°10'21"	97°51'35"	0.844	0.81804
7/ 8/2020	23:43	11:47	0h26m46s	-0°42'18"	100°25'34"	0.846	0.77636
7/15/2020	23:26	11:38	0h41m23s	0°40'49"	103°10'55"	0.850	0.73575
7/22/2020	23:07	11:29	0h55m10s	1°57'49"	106°10'31"	0.854	0.69624
7/29/2020	22:48	11:18	1h07m57s	3°07'43"	109°27'03"	0.860	0.65798
8/ 5/2020	22:29	11:05	1h19m34s	4°09'42"	113°03'15"	0.869	0.62108
8/12/2020	22:08	10:51	1h29m46s	5°02'52"	117°02'56"	0.879	0.58567
8/19/2020	21:46	10:34	1h38m17s	5°46'12"	121°30'58"	0.891	0.55197
8/26/2020	21:23	10:14	1h44m48s	6°18'54"	126°31'50"	0.905	0.52045
9/ 2/2020	20:58	9:52	1h49m01s	6°40'35"	132°09'22"	0.921	0.49165
9/ 9/2020	20:31	9:27	1h50m40s	6°50'55"	138°27'36"	0.939	0.46613
9/16/2020	20:03	8:57	1h49m34s	6°49'46"	145°29'45"	0.956	0.44470
9/23/2020	19:32	8:25	1h45m41s	6°38'02"	153°14'59"	0.973	0.42838
9/30/2020	18:59	7:50	1h39m24s	6°17'58"	161°36'06"	0.987	0.41818
10/ 7/2020	18:24	7:13	1h31m21s	5°52'53"	170°16'22"	0.996	0.41491
10/14/2020	17:49	6:35	1h22m26s	5°26'58"	177°00'20"	1.000	0.41924
10/21/2020	17:15	5:58	1h13m46s	5°05'09"	170°32'32"	0.997	0.43158
10/28/2020	16:41	5:22	1h06m24s	4°52'03"	162°00'47"	0.988	0.45180
11/ 4/2020	16:08	4:50	1h01m02s	4°50'28"	153°50'25"	0.976	0.47935
11/11/2020	15:37	4:20	0h58m04s	5°01'29"	146°13'41"	0.962	0.51357
11/18/2020	15:08	3:54	0h57m35s	5°25'10"	139°13'51"	0.948	0.55378
11/25/2020	14:41	3:30	0h59m33s	6°00'45"	132°50'28"	0.934	0.59915
12/ 2/2020	14:15	3:10	1h03m42s	6°46'38"	127°00'05"	0.922	0.64888
12/ 9/2020	13:50	2:51	1h09m46s	7°41'01"	121°38'01"	0.912	0.70239
12/16/2020	13:27	2:35	1h17m30s	8°42'22"	116°40'21"	0.903	0.75918
12/23/2020	13:05	2:21	1h26m42s	9°49'15"	112°03'57"	0.897	0.81871
12/30/2020	12:44	2:08	1h37m09s	11°00'07"	107°45'28"	0.892	0.88049

Jupiter

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2020	7:35	16:49	18h29m01s	-23°10'48"	3°20'42"	1.000	6.20960
1/ 8/2020	7:14	16:29	18h36m00s	-23°06'02"	8°52'10"	1.000	6.19507
1/15/2020	6:53	16:09	18h42m57s	-23°00'08"	14°24'07"	0.999	6.17011
1/22/2020	6:32	15:49	18h49m47s	-22°53'13"	19°57'00"	0.999	6.13489
1/29/2020	6:10	15:28	18h56m30s	-22°45'21"	25°31'03"	0.998	6.08961
2/ 5/2020	5:49	15:08	19h03m03s	-22°36'39"	31°06'22"	0.998	6.03466
2/12/2020	5:27	14:47	19h09m25s	-22°27'18"	36°43'11"	0.997	5.97061
2/19/2020	5:05	14:27	19h15m32s	-22°17'24"	42°22'05"	0.996	5.89794

2/26/2020	4:42	14:06	19h21m22s	-22°07'11"	48°03'31"	0.995	5.81721
3/ 4/2020	4:20	13:44	19h26m54s	-21°56'48"	53°47'38"	0.994	5.72919
3/11/2020	3:56	13:22	19h32m06s	-21°46'30"	59°34'48"	0.993	5.63475
3/18/2020	3:33	13:00	19h36m54s	-21°36'28"	65°25'39"	0.992	5.53472
3/25/2020	3:09	12:38	19h41m17s	-21°26'56"	71°20'52"	0.992	5.42999
4/ 1/2020	2:45	12:15	19h45m13s	-21°18'08"	77°20'48"	0.991	5.32166
4/ 8/2020	2:20	11:51	19h48m39s	-21°10'18"	83°25'48"	0.991	5.21091
4/15/2020	1:55	11:27	19h51m33s	-21°03'37"	89°36'36"	0.991	5.09889
4/22/2020	1:30	11:02	19h53m54s	-20°58'19"	95°53'59"	0.991	4.98677
4/29/2020	1:03	10:36	19h55m38s	-20°54'35"	102°18'21"	0.991	4.87596
5/ 6/2020	0:37	10:10	19h56m45s	-20°52'33"	108°49'55"	0.991	4.76790
5/13/2020	0:10	9:43	19h57m14s	-20°52'17"	115°29'09"	0.992	4.66396
5/20/2020	23:38	9:15	19h57m04s	-20°53'52"	122°16'35"	0.993	4.56554
5/27/2020	23:10	8:46	19h56m16s	-20°57'17"	129°12'17"	0.994	4.47418
6/ 3/2020	22:41	8:17	19h54m49s	-21°02'25"	136°15'49"	0.995	4.39136
6/10/2020	22:12	7:47	19h52m47s	-21°09'05"	143°26'47"	0.997	4.31841
6/17/2020	21:43	7:16	19h50m13s	-21°17'05"	150°44'55"	0.998	4.25655
6/24/2020	21:13	6:45	19h47m10s	-21°26'06"	158°09'18"	0.999	4.20699
7/ 1/2020	20:42	6:13	19h43m45s	-21°35'47"	165°38'22"	0.999	4.17072
7/ 8/2020	20:12	5:42	19h40m05s	-21°45'46"	173°10'31"	1.000	4.14836
7/15/2020	19:41	5:10	19h36m17s	-21°55'40"	179°10'36"	1.000	4.14030
7/22/2020	19:11	4:38	19h32m28s	-22°05'09"	171°39'35"	1.000	4.14675
7/29/2020	18:40	4:06	19h28m48s	-22°13'57"	164°06'44"	0.999	4.16757
8/ 5/2020	18:10	3:34	19h25m24s	-22°21'47"	156°37'10"	0.998	4.20221
8/12/2020	17:40	3:03	19h22m22s	-22°28'32"	149°12'08"	0.997	4.24990
8/19/2020	17:10	2:33	19h19m49s	-22°34'04"	141°52'40"	0.996	4.30975
8/26/2020	16:41	2:03	19h17m49s	-22°38'20"	134°40'00"	0.995	4.38060
9/ 2/2020	16:12	1:34	19h16m27s	-22°41'19"	127°34'59"	0.994	4.46105
9/ 9/2020	15:44	1:06	19h15m43s	-22°43'01"	120°37'47"	0.993	4.54967
9/16/2020	15:17	0:38	19h15m41s	-22°43'26"	113°48'19"	0.992	4.64509
9/23/2020	14:50	0:12	19h16m18s	-22°42'35"	107°06'44"	0.991	4.74581
9/30/2020	14:24	23:42	19h17m36s	-22°40'28"	100°33'03"	0.991	4.85025
10/ 7/2020	13:58	23:17	19h19m33s	-22°37'05"	94°06'46"	0.990	4.95698
10/14/2020	13:33	22:52	19h22m06s	-22°32'24"	87°47'14"	0.990	5.06468
10/21/2020	13:08	22:28	19h25m14s	-22°26'23"	81°34'04"	0.991	5.17199
10/28/2020	12:43	22:05	19h28m54s	-22°19'00"	75°27'01"	0.991	5.27756
11/ 4/2020	12:20	21:42	19h33m03s	-22°10'13"	69°25'31"	0.992	5.38023
11/11/2020	11:56	21:20	19h37m39s	-22°00'01"	63°28'49"	0.992	5.47896
11/18/2020	11:33	20:58	19h42m40s	-21°48'20"	57°36'28"	0.993	5.57272
11/25/2020	11:10	20:37	19h48m02s	-21°35'10"	51°48'15"	0.994	5.66047
12/ 2/2020	10:47	20:16	19h53m43s	-21°20'30"	46°03'47"	0.995	5.74140
12/ 9/2020	10:24	19:56	19h59m41s	-21°04'21"	40°22'26"	0.996	5.81482
12/16/2020	10:01	19:36	20h05m52s	-20°46'42"	34°43'48"	0.997	5.88004
12/23/2020	9:39	19:16	20h12m15s	-20°27'36"	29°07'45"	0.998	5.93639
12/30/2020	9:17	18:56	20h18m46s	-20°07'07"	23°34'07"	0.999	5.98342

Saturn

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2020	8:32	17:58	19h32m20s	-21°41'11"	11°21'27"	1.000	11.01426
1/ 8/2020	8:07	17:35	19h35m50s	-21°33'50"	5°02'47"	1.000	11.03045
1/15/2020	7:42	17:11	19h39m22s	-21°26'10"	1°15'23"	1.000	11.03393
1/22/2020	7:18	16:48	19h42m52s	-21°18'14"	7°33'23"	1.000	11.02462
1/29/2020	6:53	16:24	19h46m21s	-21°10'07"	13°51'26"	1.000	11.00258
2/ 5/2020	6:29	16:01	19h49m45s	-21°01'53"	20°09'30"	1.000	10.96806

2/12/2020	6:04	15:37	19h53m03s	-20°53'38"	26°27'44"	1.000	10.92158
2/19/2020	5:39	15:13	19h56m15s	-20°45'28"	32°46'38"	0.999	10.86365
2/26/2020	5:14	14:49	19h59m17s	-20°37'30"	39°06'27"	0.999	10.79486
3/ 4/2020	4:49	14:25	20h02m09s	-20°29'48"	45°27'12"	0.999	10.71606
3/11/2020	4:23	14:01	20h04m50s	-20°22'31"	51°49'02"	0.998	10.62826
3/18/2020	3:58	13:36	20h07m17s	-20°15'44"	58°12'26"	0.998	10.53248
3/25/2020	3:32	13:11	20h09m30s	-20°09'34"	64°37'49"	0.998	10.42979
4/ 1/2020	3:06	12:46	20h11m27s	-20°04'07"	71°05'15"	0.998	10.32149
4/ 8/2020	2:40	12:20	20h13m08s	-19°59'28"	77°34'51"	0.998	10.20899
4/15/2020	2:13	11:54	20h14m30s	-19°55'43"	84°07'01"	0.998	10.09368
4/22/2020	1:47	11:28	20h15m35s	-19°52'56"	90°42'14"	0.997	9.97694
4/29/2020	1:20	11:01	20h16m19s	-19°51'10"	97°20'35"	0.998	9.86037
5/ 6/2020	0:53	10:34	20h16m45s	-19°50'28"	104°02'02"	0.998	9.74561
5/13/2020	0:25	10:07	20h16m50s	-19°50'50"	110°46'48"	0.998	9.63417
5/20/2020	23:54	9:39	20h16m36s	-19°52'17"	117°35'15"	0.998	9.52755
5/27/2020	23:26	9:10	20h16m02s	-19°54'47"	124°27'21"	0.998	9.42738
6/ 3/2020	22:57	8:42	20h15m10s	-19°58'16"	131°22'46"	0.999	9.33519
6/10/2020	22:29	8:13	20h14m01s	-20°02'39"	138°21'23"	0.999	9.25234
6/17/2020	22:00	7:43	20h12m36s	-20°07'49"	145°23'18"	0.999	9.18006
6/24/2020	21:32	7:14	20h10m57s	-20°13'40"	152°28'13"	0.999	9.11958
7/ 1/2020	21:03	6:44	20h09m06s	-20°20'02"	159°35'27"	1.000	9.07194
7/ 8/2020	20:34	6:14	20h07m07s	-20°26'45"	166°44'28"	1.000	9.03787
7/15/2020	20:04	5:44	20h05m02s	-20°33'39"	173°54'59"	1.000	9.01790
7/22/2020	19:35	5:14	20h02m53s	-20°40'35"	178°51'34"	1.000	9.01245
7/29/2020	19:06	4:44	20h00m45s	-20°47'23"	171°40'47"	1.000	9.02166
8/ 5/2020	18:37	4:14	19h58m40s	-20°53'52"	164°29'19"	1.000	9.04531
8/12/2020	18:08	3:44	19h56m42s	-20°59'55"	157°18'35"	1.000	9.08296
8/19/2020	17:39	3:14	19h54m53s	-21°05'26"	150°08'59"	0.999	9.13407
8/26/2020	17:10	2:45	19h53m17s	-21°10'17"	143°01'15"	0.999	9.19782
9/ 2/2020	16:42	2:16	19h51m55s	-21°14'23"	135°55'59"	0.999	9.27307
9/ 9/2020	16:13	1:47	19h50m50s	-21°17'42"	128°53'21"	0.998	9.35858
9/16/2020	15:45	1:18	19h50m03s	-21°20'10"	121°53'23"	0.998	9.45309
9/23/2020	15:17	0:50	19h49m36s	-21°21'46"	114°56'25"	0.998	9.55514
9/30/2020	14:50	0:23	19h49m28s	-21°22'27"	108°02'50"	0.998	9.66308
10/ 7/2020	14:22	23:51	19h49m42s	-21°22'14"	101°12'32"	0.998	9.77531
10/14/2020	13:55	23:25	19h50m15s	-21°21'07"	94°25'15"	0.998	9.89029
10/21/2020	13:29	22:58	19h51m09s	-21°19'05"	87°41'00"	0.998	10.00637
10/28/2020	13:02	22:32	19h52m23s	-21°16'10"	80°59'57"	0.998	10.12187
11/ 4/2020	12:36	22:07	19h53m55s	-21°12'21"	74°21'56"	0.998	10.23522
11/11/2020	12:10	21:41	19h55m45s	-21°07'41"	67°46'30"	0.998	10.34501
11/18/2020	11:44	21:16	19h57m52s	-21°02'10"	61°13'30"	0.998	10.44979
11/25/2020	11:19	20:52	20h00m14s	-20°55'49"	54°43'00"	0.998	10.54814
12/ 2/2020	10:53	20:27	20h02m49s	-20°48'42"	48°14'52"	0.999	10.63885
12/ 9/2020	10:28	20:03	20h05m37s	-20°40'50"	41°48'41"	0.999	10.72088
12/16/2020	10:03	19:39	20h08m35s	-20°32'16"	35°24'09"	0.999	10.79321
12/23/2020	9:38	19:15	20h11m43s	-20°23'03"	29°01'21"	0.999	10.85490
12/30/2020	9:13	18:52	20h14m57s	-20°13'15"	22°40'12"	1.000	10.90525

Uranus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2020	13:00	2:31	2h02m39s	11°56'26"	112°40'22"	0.999	19.42073
1/ 8/2020	12:32	2:04	2h02m30s	11°55'49"	105°29'58"	0.999	19.53426
1/15/2020	12:05	1:36	2h02m30s	11°56'05"	98°22'19"	0.999	19.65172
1/22/2020	11:37	1:09	2h02m40s	11°57'14"	91°17'23"	0.999	19.77137

1/29/2020	11:10	0:42	2h03m00s	11°59'15"	84°15'27"	0.999	19.89139
2/ 5/2020	10:43	0:15	2h03m29s	12°02'06"	77°16'54"	0.999	20.00991
2/12/2020	10:16	23:44	2h04m08s	12°05'46"	70°21'48"	0.999	20.12522
2/19/2020	9:49	23:18	2h04m56s	12°10'11"	63°29'56"	1.000	20.23576
2/26/2020	9:22	22:52	2h05m51s	12°15'18"	56°41'17"	1.000	20.34001
3/ 4/2020	8:55	22:26	2h06m54s	12°21'03"	49°56'03"	1.000	20.43646
3/11/2020	8:28	22:00	2h08m04s	12°27'22"	43°14'14"	1.000	20.52389
3/18/2020	8:02	21:34	2h09m20s	12°34'09"	36°35'26"	1.000	20.60128
3/25/2020	7:35	21:08	2h10m41s	12°41'20"	29°59'25"	1.000	20.66765
4/ 1/2020	7:09	20:42	2h12m07s	12°48'51"	23°26'12"	1.000	20.72212
4/ 8/2020	6:42	20:17	2h13m36s	12°56'36"	16°55'44"	1.000	20.76413
4/15/2020	6:16	19:51	2h15m07s	13°04'31"	10°27'40"	1.000	20.79329
4/22/2020	5:49	19:26	2h16m40s	13°12'30"	4°02'05"	1.000	20.80928
4/29/2020	5:23	19:00	2h18m14s	13°20'29"	2°26'42"	1.000	20.81190
5/ 6/2020	4:56	18:35	2h19m47s	13°28'23"	8°48'11"	1.000	20.80122
5/13/2020	4:30	18:09	2h21m20s	13°36'07"	15°10'03"	1.000	20.77750
5/20/2020	4:03	17:44	2h22m50s	13°43'38"	21°31'34"	1.000	20.74104
5/27/2020	3:37	17:18	2h24m18s	13°50'52"	27°52'52"	1.000	20.69222
6/ 3/2020	3:10	16:53	2h25m42s	13°57'44"	34°14'04"	1.000	20.63174
6/10/2020	2:44	16:27	2h27m01s	14°04'10"	40°35'31"	1.000	20.56041
6/17/2020	2:17	16:01	2h28m15s	14°10'08"	46°57'52"	1.000	20.47904
6/24/2020	1:50	15:35	2h29m23s	14°15'34"	53°21'28"	1.000	20.38855
7/ 1/2020	1:23	15:08	2h30m24s	14°20'25"	59°46'26"	1.000	20.29014
7/ 8/2020	0:56	14:42	2h31m18s	14°24'39"	66°13'02"	0.999	20.18507
7/15/2020	0:29	14:15	2h32m04s	14°28'13"	72°41'51"	0.999	20.07457
7/22/2020	0:02	13:49	2h32m41s	14°31'05"	79°13'17"	0.999	19.96000
7/29/2020	23:31	13:22	2h33m10s	14°33'14"	85°47'24"	0.999	19.84290
8/ 5/2020	23:04	12:55	2h33m29s	14°34'39"	92°24'17"	0.999	19.72485
8/12/2020	22:37	12:27	2h33m39s	14°35'18"	99°04'25"	0.999	19.60737
8/19/2020	22:09	12:00	2h33m39s	14°35'13"	105°48'07"	0.999	19.49202
8/26/2020	21:41	11:32	2h33m30s	14°34'22"	112°35'20"	0.999	19.38050
9/ 2/2020	21:14	11:04	2h33m11s	14°32'47"	119°25'57"	1.000	19.27449
9/ 9/2020	20:46	10:36	2h32m43s	14°30'30"	126°20'10"	1.000	19.17546
9/16/2020	20:18	10:08	2h32m08s	14°27'33"	133°18'10"	1.000	19.08491
9/23/2020	19:50	9:39	2h31m24s	14°23'59"	140°19'44"	1.000	19.00434
9/30/2020	19:22	9:10	2h30m33s	14°19'53"	147°24'28"	1.000	18.93511
10/ 7/2020	18:53	8:42	2h29m37s	14°15'18"	154°32'14"	1.000	18.87827
10/14/2020	18:25	8:13	2h28m36s	14°10'21"	161°43'01"	1.000	18.83480
10/21/2020	17:57	7:44	2h27m31s	14°05'06"	168°56'20"	1.000	18.80556
10/28/2020	17:29	7:15	2h26m24s	13°59'41"	176°10'46"	1.000	18.79113
11/ 4/2020	17:00	6:46	2h25m17s	13°54'12"	176°28'23"	1.000	18.79173
11/11/2020	16:32	6:17	2h24m10s	13°48'47"	169°11'00"	1.000	18.80742
11/18/2020	16:04	5:48	2h23m05s	13°43'33"	161°51'36"	1.000	18.83807
11/25/2020	15:36	5:19	2h22m04s	13°38'36"	154°31'47"	1.000	18.88324
12/ 2/2020	15:07	4:51	2h21m07s	13°34'03"	147°12'15"	1.000	18.94209
12/ 9/2020	14:39	4:22	2h20m17s	13°30'01"	139°53'14"	1.000	19.01369
12/16/2020	14:11	3:54	2h19m34s	13°26'35"	132°35'04"	1.000	19.09695
12/23/2020	13:43	3:25	2h18m59s	13°23'51"	125°18'29"	1.000	19.19049
12/30/2020	13:16	2:57	2h18m33s	13°21'50"	118°03'59"	1.000	19.29269

Neptune

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2020	11:12	22:33	23h11m04s	-6°21'44"	66°15'50"	1.000	30.31552
1/ 8/2020	10:45	22:06	23h11m37s	-6°18'09"	59°16'42"	1.000	30.42353

1/15/2020	10:18	21:40	23h12m14s	-6°14'03"	52°19'11"	1.000	30.52410
1/22/2020	9:51	21:13	23h12m57s	-6°09'28"	45°23'08"	1.000	30.61588
1/29/2020	9:24	20:47	23h13m43s	-6°04'28"	38°28'39"	1.000	30.69751
2/ 5/2020	8:57	20:20	23h14m34s	-5°59'06"	31°36'06"	1.000	30.76783
2/12/2020	8:30	19:54	23h15m27s	-5°53'25"	24°45'31"	1.000	30.82595
2/19/2020	8:03	19:28	23h16m22s	-5°47'31"	17°56'46"	1.000	30.87119
2/26/2020	7:36	19:01	23h17m20s	-5°41'27"	11°10'09"	1.000	30.90291
3/ 4/2020	7:09	18:35	23h18m18s	-5°35'17"	4°28'29"	1.000	30.92069
3/11/2020	6:42	18:09	23h19m18s	-5°29'06"	2°35'09"	1.000	30.92445
3/18/2020	6:15	17:43	23h20m16s	-5°22'57"	9°08'44"	1.000	30.91426
3/25/2020	5:49	17:17	23h21m14s	-5°16'55"	15°48'46"	1.000	30.89024
4/ 1/2020	5:22	16:50	23h22m11s	-5°11'04"	22°28'23"	1.000	30.85275
4/ 8/2020	4:55	16:24	23h23m05s	-5°05'27"	29°06'58"	1.000	30.80246
4/15/2020	4:28	15:58	23h23m57s	-5°00'09"	35°44'45"	1.000	30.74011
4/22/2020	4:01	15:31	23h24m46s	-4°55'12"	42°22'03"	1.000	30.66651
4/29/2020	3:34	15:05	23h25m31s	-4°50'40"	48°58'54"	1.000	30.58265
5/ 6/2020	3:07	14:38	23h26m11s	-4°46'37"	55°35'15"	1.000	30.48978
5/13/2020	2:39	14:11	23h26m47s	-4°43'03"	62°11'27"	1.000	30.38918
5/20/2020	2:12	13:44	23h27m18s	-4°40'03"	68°47'56"	1.000	30.28210
5/27/2020	1:45	13:17	23h27m44s	-4°37'37"	75°24'51"	1.000	30.16999
6/ 3/2020	1:18	12:50	23h28m04s	-4°35'47"	82°02'10"	1.000	30.05445
6/10/2020	0:50	12:23	23h28m19s	-4°34'34"	88°40'06"	1.000	29.93704
6/17/2020	0:23	11:56	23h28m28s	-4°33'59"	95°19'08"	1.000	29.81927
6/24/2020	23:52	11:28	23h28m30s	-4°34'02"	101°59'26"	1.000	29.70274
7/ 1/2020	23:24	11:01	23h28m27s	-4°34'43"	108°40'56"	1.000	29.58916
7/ 8/2020	22:56	10:33	23h28m18s	-4°35'59"	115°23'42"	1.000	29.48010
7/15/2020	22:29	10:05	23h28m04s	-4°37'51"	122°08'08"	1.000	29.37702
7/22/2020	22:01	9:37	23h27m44s	-4°40'16"	128°54'26"	1.000	29.28139
7/29/2020	21:33	9:09	23h27m19s	-4°43'11"	135°42'24"	1.000	29.19471
8/ 5/2020	21:05	8:41	23h26m50s	-4°46'32"	142°31'57"	1.000	29.11824
8/12/2020	20:38	8:12	23h26m17s	-4°50'18"	149°23'19"	1.000	29.05305
8/19/2020	20:10	7:44	23h25m41s	-4°54'22"	156°16'36"	1.000	29.00018
8/26/2020	19:42	7:16	23h25m02s	-4°58'43"	163°11'23"	1.000	28.96056
9/ 2/2020	19:14	6:47	23h24m21s	-5°03'13"	170°06'48"	1.000	28.93481
9/ 9/2020	18:46	6:19	23h23m39s	-5°07'48"	176°56'33"	1.000	28.92332
9/16/2020	18:18	5:50	23h22m56s	-5°12'24"	175°41'38"	1.000	28.92637
9/23/2020	17:50	5:22	23h22m14s	-5°16'55"	168°45'18"	1.000	28.94408
9/30/2020	17:22	4:53	23h21m33s	-5°21'16"	161°43'42"	1.000	28.97621
10/ 7/2020	16:54	4:25	23h20m54s	-5°25'21"	154°40'23"	1.000	29.02225
10/14/2020	16:26	3:57	23h20m18s	-5°29'07"	147°35'45"	1.000	29.08163
10/21/2020	15:58	3:28	23h19m45s	-5°32'28"	140°30'12"	1.000	29.15356
10/28/2020	15:30	3:00	23h19m16s	-5°35'22"	133°24'14"	1.000	29.23691
11/ 4/2020	15:03	2:32	23h18m52s	-5°37'43"	126°18'06"	1.000	29.33039
11/11/2020	14:35	2:04	23h18m34s	-5°39'30"	119°11'45"	1.000	29.43265
11/18/2020	14:07	1:36	23h18m21s	-5°40'40"	112°05'21"	1.000	29.54221
11/25/2020	13:40	1:09	23h18m14s	-5°41'12"	104°59'25"	1.000	29.65734
12/ 2/2020	13:12	0:41	23h18m13s	-5°41'04"	97°54'13"	1.000	29.77622
12/ 9/2020	12:45	0:14	23h18m19s	-5°40'16"	90°49'41"	1.000	29.89716
12/16/2020	12:17	23:43	23h18m30s	-5°38'48"	83°45'53"	1.000	30.01838
12/23/2020	11:50	23:16	23h18m48s	-5°36'41"	76°43'16"	1.000	30.13797
12/30/2020	11:23	22:49	23h19m12s	-5°33'56"	69°42'05"	1.000	30.25414

Pluto

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
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1/ 1/2020	8:38	18:00	19h37m10s	-22°13'16"	12°23'34"	1.000	34.91072
1/ 8/2020	8:12	17:34	19h38m09s	-22°11'34"	5°30'50"	1.000	34.93417
1/15/2020	7:45	17:08	19h39m10s	-22°09'51"	1°34'25"	1.000	34.94334
1/22/2020	7:18	16:41	19h40m10s	-22°08'08"	8°20'38"	1.000	34.93815
1/29/2020	6:52	16:15	19h41m10s	-22°06'26"	15°13'18"	1.000	34.91868
2/ 5/2020	6:25	15:48	19h42m08s	-22°04'48"	22°05'55"	1.000	34.88530
2/12/2020	5:58	15:22	19h43m03s	-22°03'15"	28°58'06"	1.000	34.83868
2/19/2020	5:32	14:55	19h43m56s	-22°01'48"	35°50'02"	1.000	34.77954
2/26/2020	5:05	14:29	19h44m45s	-22°00'31"	42°41'43"	1.000	34.70871
3/ 4/2020	4:38	14:02	19h45m31s	-21°59'23"	49°32'53"	1.000	34.62735
3/11/2020	4:11	13:35	19h46m12s	-21°58'27"	56°23'28"	1.000	34.53677
3/18/2020	3:44	13:08	19h46m48s	-21°57'44"	63°13'42"	1.000	34.43830
3/25/2020	3:17	12:41	19h47m18s	-21°57'14"	70°03'46"	1.000	34.33335
4/ 1/2020	2:50	12:14	19h47m43s	-21°56'59"	76°53'28"	1.000	34.22352
4/ 8/2020	2:23	11:47	19h48m02s	-21°57'00"	83°42'41"	1.000	34.11053
4/15/2020	1:55	11:20	19h48m15s	-21°57'16"	90°31'41"	1.000	33.99598
4/22/2020	1:28	10:52	19h48m22s	-21°57'48"	97°20'41"	1.000	33.88151
4/29/2020	1:01	10:25	19h48m23s	-21°58'36"	104°09'37"	1.000	33.76886
5/ 6/2020	0:33	9:57	19h48m18s	-21°59'40"	110°58'18"	1.000	33.65976
5/13/2020	0:05	9:29	19h48m07s	-22°00'57"	117°46'54"	1.000	33.55574
5/20/2020	23:34	9:01	19h47m51s	-22°02'29"	124°35'44"	1.000	33.45831
5/27/2020	23:06	8:33	19h47m29s	-22°04'14"	131°24'45"	1.000	33.36895
6/ 3/2020	22:38	8:05	19h47m03s	-22°06'09"	138°13'45"	1.000	33.28909
6/10/2020	22:10	7:37	19h46m32s	-22°08'15"	145°02'45"	1.000	33.21983
6/17/2020	21:42	7:09	19h45m57s	-22°10'28"	151°52'04"	1.000	33.16219
6/24/2020	21:14	6:40	19h45m20s	-22°12'47"	158°41'39"	1.000	33.11714
7/ 1/2020	20:46	6:12	19h44m40s	-22°15'10"	165°31'02"	1.000	33.08544
7/ 8/2020	20:18	5:44	19h43m58s	-22°17'36"	172°19'21"	1.000	33.06754
7/15/2020	19:50	5:15	19h43m16s	-22°20'01"	178°44'12"	1.000	33.06374
7/22/2020	19:22	4:47	19h42m33s	-22°22'25"	173°50'13"	1.000	33.07425
7/29/2020	18:54	4:18	19h41m51s	-22°24'44"	167°01'35"	1.000	33.09904
8/ 5/2020	18:26	3:50	19h41m10s	-22°26'58"	160°11'04"	1.000	33.13775
8/12/2020	17:58	3:22	19h40m32s	-22°29'05"	153°19'50"	1.000	33.18988
8/19/2020	17:30	2:53	19h39m56s	-22°31'02"	146°27'59"	1.000	33.25484
8/26/2020	17:02	2:25	19h39m24s	-22°32'49"	139°35'47"	1.000	33.33183
9/ 2/2020	16:34	1:57	19h38m56s	-22°34'25"	132°43'30"	1.000	33.41969
9/ 9/2020	16:07	1:29	19h38m33s	-22°35'48"	125°50'58"	1.000	33.51726
9/16/2020	15:39	1:01	19h38m15s	-22°36'58"	118°57'59"	1.000	33.62328
9/23/2020	15:11	0:33	19h38m02s	-22°37'53"	112°04'42"	1.000	33.73631
9/30/2020	14:44	0:06	19h37m56s	-22°38'35"	105°11'21"	1.000	33.85471
10/ 7/2020	14:16	23:34	19h37m55s	-22°39'01"	98°17'52"	1.000	33.97683
10/14/2020	13:49	23:07	19h38m01s	-22°39'13"	91°23'59"	1.000	34.10109
10/21/2020	13:21	22:40	19h38m13s	-22°39'10"	84°29'47"	1.000	34.22574
10/28/2020	12:54	22:12	19h38m30s	-22°38'53"	77°35'33"	1.000	34.34896
11/ 4/2020	12:27	21:45	19h38m54s	-22°38'22"	70°41'16"	1.000	34.46904
11/11/2020	12:00	21:18	19h39m24s	-22°37'37"	63°46'44"	1.000	34.58442
11/18/2020	11:33	20:52	19h39m59s	-22°36'40"	56°51'56"	1.000	34.69344
11/25/2020	11:06	20:25	19h40m39s	-22°35'31"	49°57'10"	1.000	34.79453
12/ 2/2020	10:39	19:58	19h41m24s	-22°34'12"	43°02'34"	1.000	34.88629
12/ 9/2020	10:12	19:31	19h42m13s	-22°32'43"	36°07'56"	1.000	34.96757
12/16/2020	9:45	19:05	19h43m05s	-22°31'06"	29°13'17"	1.000	35.03720
12/23/2020	9:19	18:38	19h44m00s	-22°29'23"	22°18'58"	1.000	35.09418
12/30/2020	8:52	18:12	19h44m58s	-22°27'34"	15°25'25"	1.000	35.13780

Midway, UT (JMC) Latitude: 40°30'53" N Longitude: 111°27'50" W
 Local Time = UT - 7.00 hours Elevation: 1708 meters Year 2020
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Planet Apsides Report for 2020

Earth

1/ 3/2020 Perihelion Distance from Sun: 0.98 AU
 7/ 4/2020 Aphelion Distance from Sun: 1.02 AU

Mercury

2/11/2020 Perihelion Distance from Sun: 0.31 AU
 5/ 9/2020 Perihelion Distance from Sun: 0.31 AU
 8/ 5/2020 Perihelion Distance from Sun: 0.31 AU
 11/ 1/2020 Perihelion Distance from Sun: 0.31 AU
 3/26/2020 Aphelion Distance from Sun: 0.47 AU
 6/22/2020 Aphelion Distance from Sun: 0.47 AU
 9/18/2020 Aphelion Distance from Sun: 0.47 AU
 12/15/2020 Aphelion Distance from Sun: 0.47 AU

Venus

3/19/2020 Perihelion Distance from Sun: 0.72 AU
 10/30/2020 Perihelion Distance from Sun: 0.72 AU
 7/10/2020 Aphelion Distance from Sun: 0.73 AU

Mars

8/ 3/2020 Perihelion Distance from Sun: 1.38 AU

Jupiter

No Apsis

Saturn

No Apsis

Planet Conjunction/Opposition Report for 1/ 1/2020 to 12/31/2020

Mercury

Date	Hour	Event
1/10/2020	17	Superior Conjunction
2/25/2020	19	Inferior Conjunction
5/ 4/2020	17	Superior Conjunction (Occultation)
6/30/2020	20	Inferior Conjunction
8/17/2020	17	Superior Conjunction
10/25/2020	17	Inferior Conjunction
12/19/2020	20	Superior Conjunction

Venus

Date	Hour	Event
6/ 3/2020	17	Inferior Conjunction

Mars

Date	Hour	Event
10/13/2020	17	Opposition

10/ 7/2020	17:28	Ascending	0.72
10/20/2020	8:52	Descending	0.18
11/ 3/2020	19:38	Ascending	0.91
11/16/2020	17:06	Descending	0.03
12/ 1/2020	0:45	Ascending	1.00
12/14/2020	4:02	Descending	0.00
12/28/2020	8:02	Ascending	0.97

Meteor Showers Report for 1/ 1/2020 to 12/31/2020

Date	Meteor Shower	ZHR	RA	DEC	Illum. Frac.	Longitude
1/ 4/2020	Quadrantids	80	15h28m	50°	0.64	284°
4/11/2020	Virginids	5	14h04m	-9°	0.82	22°
4/21/2020	Lyrids	12	18h08m	32°	0.02	32°
4/27/2020	alpha-Scorpiids	5	16h32m	-24°	0.19	38°
5/ 4/2020	eta-Aquarids	35	22h20m	-1°	0.89	45°
5/12/2020	alpha-Scorpiids	5	16h04m	-24°	0.69	52°
6/ 9/2020	Ophiuchids	5	17h56m	-23°	0.83	79°
6/19/2020	Ophiuchids	5	17h20m	-20°	0.03	89°
7/ 7/2020	Capricornids	5			0.93	106°
7/14/2020	Capricornids	5	20h44m	-15°	0.34	113°
7/20/2020	alpha-Cygnids	5	21h00m	48°	0.00	118°
7/25/2020	Capricornids	5	21h00m	-15°	0.30	123°
7/28/2020	delta-Aquarids	20	22h36m	-17°	0.64	126°
7/30/2020	Piscis Australids	5	22h40m	-30°	0.83	128°
8/ 1/2020	alpha-Capricornids	5	20h36m	-10°	0.96	130°
8/ 5/2020	iota-Aquarids	8	22h10m	-15°	0.96	134°
8/12/2020	Perseids	75	3h04m	58°	0.40	140°
8/20/2020	alpha-Cygnids	5	21h00m	48°	0.04	148°
9/ 7/2020	Piscids	10	0h36m	7°	0.75	166°
9/20/2020	Piscids	5	0h24m	0°	0.15	178°
10/12/2020	Piscids	??	1h44m	14°	0.23	200°
10/21/2020	Orionids	25	6h24m	15°	0.31	209°
11/ 2/2020	Taurids	8	3h44m	14°	0.96	221°
11/17/2020	Leonids	10	10h08m	22°	0.09	236°
12/ 8/2020	Puppids-Velids	15	9h00m	-48°	0.42	257°
12/13/2020	Geminids	75	7h28m	32°	0.01	262°
12/22/2020	Ursids	5	14h28m	78°	0.57	271°
12/25/2020	Puppids-Velids	15	9h20m	-65°	0.82	274°

Twilight Report for 1/ 1/2020 to 12/31/2020

Date	Sun		Astronomical		Nautical		Civil	
	Rise	Set	Begin	End	Begin	End	Begin	End
1/ 1/2020	7:49	17:10	6:06	18:53	6:39	18:19	7:14	17:45
1/ 8/2020	7:49	17:16	6:07	18:58	6:40	18:25	7:14	17:51
1/15/2020	7:47	17:23	6:06	19:05	6:39	18:32	7:13	17:58
1/22/2020	7:44	17:31	6:04	19:11	6:36	18:39	7:09	18:06
1/29/2020	7:39	17:40	6:00	19:19	6:32	18:46	7:05	18:14
2/ 5/2020	7:32	17:48	5:54	19:26	6:26	18:54	6:59	18:22
2/12/2020	7:24	17:57	5:47	19:33	6:19	19:02	6:51	18:30
2/19/2020	7:15	18:05	5:39	19:41	6:11	19:09	6:42	18:38
2/26/2020	7:05	18:14	5:30	19:49	6:01	19:17	6:33	18:45
3/ 4/2020	6:54	18:21	5:19	19:56	5:51	19:25	6:22	18:53

Midway, UT (JMC) Latitude: 40°30'53" N Longitude: 111°27'50" W
Local Time = UT - 7.00 hours Elevation: 1708 meters Year 2020
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3/11/2020	6:43	18:29	5:08	20:04	5:40	19:32	6:11	19:01
3/18/2020	6:32	18:37	4:56	20:12	5:28	19:40	6:00	19:08
3/25/2020	6:20	18:44	4:44	20:20	5:16	19:48	5:48	19:16
4/ 1/2020	6:09	18:51	4:31	20:29	5:04	19:56	5:37	19:23
4/ 8/2020	5:57	18:58	4:17	20:38	4:52	20:04	5:25	19:31
4/15/2020	5:47	19:06	4:04	20:48	4:40	20:12	5:14	19:39
4/22/2020	5:36	19:13	3:51	20:58	4:28	20:21	5:03	19:46
4/29/2020	5:27	19:20	3:38	21:09	4:17	20:30	4:53	19:54
5/ 6/2020	5:18	19:27	3:26	21:19	4:06	20:39	4:43	20:02
5/13/2020	5:11	19:34	3:15	21:30	3:57	20:48	4:35	20:10
5/20/2020	5:05	19:41	3:05	21:41	3:49	20:57	4:28	20:17
5/27/2020	5:00	19:47	2:56	21:50	3:42	21:04	4:23	20:24
6/ 3/2020	4:57	19:52	2:50	21:59	3:38	21:11	4:19	20:30
6/10/2020	4:55	19:56	2:46	22:05	3:35	21:16	4:17	20:34
6/17/2020	4:55	19:59	2:45	22:09	3:34	21:20	4:17	20:37
6/24/2020	4:57	20:00	2:46	22:11	3:36	21:21	4:18	20:39
7/ 1/2020	4:59	20:00	2:51	22:09	3:40	21:20	4:21	20:38
7/ 8/2020	5:04	19:58	2:57	22:05	3:45	21:17	4:26	20:36
7/15/2020	5:09	19:55	3:05	21:58	3:51	21:12	4:32	20:32
7/22/2020	5:15	19:50	3:15	21:49	3:59	21:05	4:38	20:26
7/29/2020	5:21	19:43	3:25	21:39	4:07	20:57	4:45	20:19
8/ 5/2020	5:27	19:36	3:36	21:28	4:16	20:47	4:53	20:10
8/12/2020	5:34	19:27	3:46	21:15	4:24	20:37	5:00	20:01
8/19/2020	5:41	19:17	3:56	21:02	4:33	20:25	5:08	19:50
8/26/2020	5:48	19:06	4:06	20:49	4:41	20:13	5:15	19:39
9/ 2/2020	5:55	18:55	4:15	20:35	4:49	20:01	5:22	19:28
9/ 9/2020	6:01	18:44	4:23	20:22	4:57	19:48	5:30	19:16
9/16/2020	6:08	18:32	4:32	20:09	5:04	19:36	5:37	19:04
9/23/2020	6:15	18:20	4:39	19:56	5:12	19:24	5:44	18:52
9/30/2020	6:22	18:09	4:47	19:44	5:19	19:12	5:50	18:40
10/ 7/2020	6:29	17:57	4:54	19:32	5:26	19:00	5:57	18:29
10/14/2020	6:36	17:46	5:02	19:21	5:33	18:50	6:05	18:18
10/21/2020	6:44	17:36	5:09	19:12	5:40	18:40	6:12	18:08
10/28/2020	6:52	17:27	5:16	19:03	5:47	18:31	6:19	17:59
11/ 4/2020	7:00	17:18	5:23	18:56	5:55	18:24	6:27	17:52
11/11/2020	7:08	17:11	5:30	18:50	6:02	18:18	6:35	17:45
11/18/2020	7:16	17:06	5:37	18:45	6:09	18:13	6:42	17:40
11/25/2020	7:24	17:02	5:43	18:43	6:16	18:10	6:50	17:36
12/ 2/2020	7:32	16:59	5:50	18:41	6:23	18:09	6:56	17:35
12/ 9/2020	7:38	16:59	5:55	18:42	6:28	18:09	7:02	17:35
12/16/2020	7:43	17:00	6:00	18:44	6:33	18:11	7:07	17:36
12/23/2020	7:47	17:04	6:04	18:47	6:37	18:14	7:11	17:40
12/30/2020	7:49	17:09	6:06	18:52	6:39	18:19	7:13	17:44