

Grange Observatory

**ASTRONOMICAL ALMANAC
FOR YEAR 2020**

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

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
 Local Time = UT + 1.00 hours Elevation: 470 meters

Calendar Report for 01/01/2020 to 31/12/2020

January 2020

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

February 2020

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

March 2020

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

April 2020

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

May 2020

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

June 2020

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

July 2020

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

August 2020

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

September 2020

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

October 2020

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

November 2020

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

December 2020

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

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
Local Time = UT + 1.00 hours Elevation: 470 meters

Seasons Report for 2020

MEQ: 20/03/2020 04:52	Winter Length:	88.99 days
JSO: 20/06/2020 22:43	Spring Length:	92.74 days
SEQ: 22/09/2020 14:30	Summer Length:	93.66 days
DSO: 21/12/2020 10:59	Autumn Length:	89.85 days

Dates of Easter Report for 2020

12/04/2020

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
Local Time = UT + 1.00 hours Elevation: 470 meters

Lunar Eclipse Report for 2020

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
Local Time = UT + 1.00 hours Elevation: 470 meters

Solar Eclipse Report for 2020

Solar eclipse on 21/06/2020
Sun rise: 04:44
Sun set: 20:22
Time of maximum eclipse: 07:40
Eclipse is annular
Eclipse is visible in the northern hemisphere

Solar eclipse on 14/12/2020
Sun rise: 08:03
Sun set: 16:50
Time of maximum eclipse: 17:16
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.

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
 Local Time = UT + 1.00 hours Elevation: 470 meters

Planet View Info Report for 01/01/2020 to 31/12/2020

Mercury

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2020	07:57	16:26	18h19m19s	-24°38'09"	5°45'37"	0.989	1.43404
08/01/2020	08:17	16:50	19h08m24s	-24°18'24"	2°23'40"	0.998	1.43660
15/01/2020	08:30	17:21	19h58m05s	-22°46'43"	3°27'20"	0.995	1.41054
22/01/2020	08:38	17:57	20h47m34s	-19°59'47"	7°45'44"	0.971	1.35108
29/01/2020	08:39	18:37	21h35m23s	-16°00'11"	12°30'30"	0.902	1.24996
05/02/2020	08:33	19:12	22h18m01s	-11°08'28"	16°42'28"	0.740	1.09936
12/02/2020	08:15	19:30	22h47m16s	-6°30'37"	18°04'12"	0.453	0.90925
19/02/2020	07:41	19:11	22h51m11s	-4°10'02"	13°04'35"	0.141	0.73181
26/02/2020	06:57	18:14	22h29m17s	-5°29'18"	3°43'24"	0.008	0.63730
04/03/2020	06:19	17:11	22h05m21s	-8°39'24"	13°52'46"	0.100	0.64539
11/03/2020	05:55	16:31	21h59m48s	-10°52'32"	22°40'12"	0.270	0.71849
18/03/2020	05:43	16:16	22h12m34s	-11°19'48"	26°50'14"	0.421	0.81656
25/03/2020	05:35	16:20	22h37m15s	-10°12'23"	27°45'51"	0.540	0.91938
01/04/2020	05:30	16:35	23h09m10s	-7°46'39"	26°31'25"	0.635	1.01937
08/04/2020	05:24	16:59	23h45m53s	-4°14'47"	23°40'09"	0.720	1.11374
15/04/2020	05:19	17:31	0h26m39s	0°13'55"	19°25'23"	0.803	1.20008
22/04/2020	05:16	18:11	1h11m48s	5°29'49"	13°49'02"	0.889	1.27298
29/04/2020	05:15	18:59	2h02m22s	11°17'25"	6°49'44"	0.968	1.32024
06/05/2020	05:18	19:55	2h59m04s	17°03'57"	1°19'32"	0.999	1.32064
13/05/2020	05:28	20:52	3h59m47s	21°51'16"	9°40'37"	0.918	1.25543
20/05/2020	05:44	21:36	4h58m27s	24°45'24"	16°43'37"	0.747	1.13460
27/05/2020	06:01	22:02	5h49m02s	25°39'35"	21°27'53"	0.564	0.99116
03/06/2020	06:16	22:08	6h28m04s	25°02'23"	23°31'56"	0.405	0.85134
10/06/2020	06:22	21:55	6h53m25s	23°29'23"	22°39'20"	0.265	0.72894
17/06/2020	06:14	21:25	7h03m20s	21°33'56"	18°27'42"	0.142	0.63295
24/06/2020	05:49	20:41	6h57m37s	19°47'20"	11°00'23"	0.045	0.57343
01/07/2020	05:11	19:52	6h41m18s	18°39'10"	4°26'12"	0.007	0.56224
08/07/2020	04:29	19:11	6h26m17s	18°30'44"	11°07'02"	0.053	0.60740
15/07/2020	03:56	18:48	6h24m31s	19°20'22"	17°37'08"	0.176	0.70717
22/07/2020	03:39	18:45	6h41m23s	20°37'01"	20°07'03"	0.359	0.85150
29/07/2020	03:43	18:59	7h17m06s	21°28'10"	18°28'13"	0.591	1.02244
05/08/2020	04:11	19:20	8h08m12s	20°51'59"	13°19'41"	0.825	1.18741
12/08/2020	04:55	19:37	9h06m29s	18°11'54"	6°15'20"	0.969	1.30554
19/08/2020	05:44	19:44	10h02m50s	13°50'43"	2°15'53"	0.997	1.36008
26/08/2020	06:29	19:44	10h53m19s	8°38'58"	8°13'53"	0.965	1.36371
02/09/2020	07:08	19:39	11h38m06s	3°14'24"	13°43'27"	0.914	1.33372
09/09/2020	07:42	19:30	12h18m26s	-2°01'40"	18°15'36"	0.858	1.28078
16/09/2020	08:11	19:19	12h55m21s	-6°56'35"	21°51'19"	0.797	1.20963
23/09/2020	08:36	19:07	13h29m10s	-11°20'05"	24°26'59"	0.724	1.12173
30/09/2020	08:53	18:53	13h59m05s	-14°59'57"	25°45'54"	0.628	1.01751
07/10/2020	09:00	18:37	14h22m20s	-17°36'12"	25°04'45"	0.493	0.89916
14/10/2020	08:46	18:14	14h32m36s	-18°29'39"	20°49'04"	0.299	0.77678
21/10/2020	07:56	17:43	14h20m46s	-16°30'34"	10°33'44"	0.075	0.68345
28/10/2020	06:38	17:08	13h51m40s	-11°38'11"	4°57'58"	0.019	0.68612
04/11/2020	05:45	16:43	13h38m36s	-8°23'07"	16°13'06"	0.279	0.81613
11/11/2020	05:39	16:29	13h55m15s	-9°21'33"	19°05'37"	0.599	1.00119
18/11/2020	06:00	16:21	14h28m50s	-12°37'30"	17°15'33"	0.803	1.16701
25/11/2020	06:29	16:18	15h09m16s	-16°22'29"	13°49'02"	0.908	1.29118
02/12/2020	07:01	16:18	15h52m50s	-19°46'52"	9°59'34"	0.961	1.37574
09/12/2020	07:33	16:23	16h38m24s	-22°29'08"	6°09'52"	0.987	1.42658
16/12/2020	08:02	16:34	17h25m40s	-24°17'38"	2°32'58"	0.998	1.44784
23/12/2020	08:27	16:52	18h14m19s	-25°03'55"	2°19'54"	0.998	1.44115
30/12/2020	08:47	17:16	19h03m50s	-24°41'00"	6°05'07"	0.986	1.40551

Venus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2020	10:14	19:49	21h09m46s	-18°15'49"	34°26'48"	0.822	1.27790
08/01/2020	10:08	20:08	21h43m38s	-15°30'19"	35°51'56"	0.804	1.23776
15/01/2020	09:59	20:26	22h16m20s	-12°25'07"	37°14'24"	0.785	1.19620
22/01/2020	09:49	20:45	22h47m59s	-9°04'40"	38°33'47"	0.765	1.15328
29/01/2020	09:38	21:02	23h18m45s	-5°33'23"	39°49'48"	0.744	1.10893
05/02/2020	09:26	21:19	23h48m47s	-1°55'40"	41°02'01"	0.721	1.06312
12/02/2020	09:13	21:36	0h18m16s	1°44'15"	42°09'34"	0.697	1.01594
19/02/2020	09:00	21:52	0h47m21s	5°22'21"	43°11'26"	0.671	0.96747
26/02/2020	08:46	22:08	1h16m13s	8°54'50"	44°06'40"	0.644	0.91773
04/03/2020	08:33	22:23	1h44m56s	12°17'49"	44°53'56"	0.614	0.86674
11/03/2020	08:20	22:38	2h13m31s	15°27'36"	45°31'10"	0.583	0.81465
18/03/2020	08:07	22:53	2h41m56s	18°20'47"	45°55'43"	0.548	0.76170
25/03/2020	07:55	23:05	3h10m00s	20°54'24"	46°04'34"	0.511	0.70806
01/04/2020	07:44	23:16	3h37m25s	23°05'51"	45°53'36"	0.471	0.65396
08/04/2020	07:33	23:24	4h03m39s	24°53'07"	45°16'50"	0.427	0.59976
15/04/2020	07:22	23:28	4h27m58s	26°15'04"	44°06'16"	0.379	0.54606
22/04/2020	07:10	23:27	4h49m26s	27°11'26"	42°11'39"	0.326	0.49353
29/04/2020	06:56	23:19	5h06m51s	27°42'24"	39°19'16"	0.267	0.44307
06/05/2020	06:40	23:02	5h18m40s	27°47'54"	35°10'43"	0.203	0.39601
13/05/2020	06:19	22:36	5h23m15s	27°26'27"	29°24'55"	0.136	0.35433
20/05/2020	05:53	21:58	5h19m28s	26°34'17"	21°44'50"	0.072	0.32058
27/05/2020	05:22	21:09	5h07m36s	25°07'11"	12°10'24"	0.022	0.29774
03/06/2020	04:48	20:13	4h50m27s	23°08'20"	1°20'11"	0.000	0.28864
10/06/2020	04:15	19:18	4h33m15s	20°57'17"	9°49'26"	0.014	0.29474
17/06/2020	03:44	18:30	4h21m02s	19°03'45"	19°44'00"	0.059	0.31509
24/06/2020	03:18	17:53	4h16m20s	17°48'30"	27°47'23"	0.121	0.34696
01/07/2020	02:56	17:27	4h19m10s	17°15'23"	33°54'50"	0.187	0.38729
08/07/2020	02:38	17:10	4h28m35s	17°17'10"	38°21'26"	0.250	0.43353
15/07/2020	02:23	16:59	4h43m21s	17°42'38"	41°27'32"	0.309	0.48364
22/07/2020	02:12	16:54	5h02m23s	18°20'28"	43°32'11"	0.362	0.53613
29/07/2020	02:03	16:52	5h24m48s	19°00'58"	44°50'22"	0.411	0.59004
05/08/2020	01:58	16:53	5h49m55s	19°36'14"	45°32'47"	0.455	0.64473
12/08/2020	01:56	16:55	6h17m15s	19°59'46"	45°47'26"	0.495	0.69967
19/08/2020	01:57	16:57	6h46m18s	20°06'27"	45°40'35"	0.533	0.75439
26/08/2020	02:00	16:58	7h16m38s	19°52'33"	45°16'55"	0.567	0.80861
02/09/2020	02:07	16:59	7h47m52s	19°15'38"	44°39'35"	0.600	0.86216
09/09/2020	02:16	16:58	8h19m40s	18°14'23"	43°51'00"	0.630	0.91486
16/09/2020	02:27	16:56	8h51m45s	16°48'39"	42°53'24"	0.659	0.96648
23/09/2020	02:40	16:52	9h23m52s	14°59'25"	41°48'27"	0.686	1.01687
30/09/2020	02:54	16:46	9h55m52s	12°48'33"	40°37'17"	0.712	1.06596
07/10/2020	03:09	16:39	10h27m40s	10°18'26"	39°20'47"	0.737	1.11370
14/10/2020	03:25	16:32	10h59m16s	7°32'03"	37°59'55"	0.760	1.15993
21/10/2020	03:41	16:23	11h30m43s	4°32'54"	36°35'33"	0.782	1.20452
28/10/2020	03:58	16:14	12h02m06s	1°24'43"	35°08'09"	0.803	1.24745
04/11/2020	04:15	16:05	12h33m36s	-1°48'40"	33°38'07"	0.822	1.28872
11/11/2020	04:32	15:56	13h05m22s	-5°03'13"	32°05'59"	0.841	1.32824
18/11/2020	04:50	15:48	13h37m35s	-8°14'40"	30°32'17"	0.858	1.36590
25/11/2020	05:08	15:41	14h10m26s	-11°18'34"	28°57'17"	0.874	1.40169
02/12/2020	05:26	15:34	14h44m03s	-14°10'27"	27°21'07"	0.889	1.43566
09/12/2020	05:45	15:30	15h18m35s	-16°45'50"	25°44'08"	0.903	1.46778
16/12/2020	06:03	15:28	15h54m05s	-19°00'10"	24°06'40"	0.915	1.49799
23/12/2020	06:21	15:28	16h30m31s	-20°49'11"	22°28'48"	0.927	1.52626
30/12/2020	06:37	15:31	17h07m45s	-22°09'04"	20°50'32"	0.938	1.55269

Mars

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2020	04:55	14:15	15h44m55s	-19°26'44"	41°37'27"	0.956	2.18444
08/01/2020	04:52	14:02	16h04m29s	-20°29'25"	44°02'37"	0.951	2.13336
15/01/2020	04:49	13:50	16h24m23s	-21°24'06"	46°26'33"	0.946	2.08084
22/01/2020	04:46	13:39	16h44m35s	-22°10'12"	48°49'13"	0.940	2.02700
29/01/2020	04:42	13:29	17h05m02s	-22°47'13"	51°10'32"	0.935	1.97202
05/02/2020	04:37	13:20	17h25m43s	-23°14'42"	53°30'08"	0.930	1.91614
12/02/2020	04:32	13:11	17h46m35s	-23°32'21"	55°47'46"	0.924	1.85964
19/02/2020	04:26	13:04	18h07m35s	-23°39'54"	58°03'28"	0.918	1.80265
26/02/2020	04:19	12:58	18h28m39s	-23°37'14"	60°17'17"	0.912	1.74531
04/03/2020	04:11	12:53	18h49m43s	-23°24'23"	62°29'01"	0.907	1.68787
11/03/2020	04:03	12:48	19h10m45s	-23°01'27"	64°38'27"	0.901	1.63056
18/03/2020	03:53	12:44	19h31m41s	-22°28'40"	66°45'44"	0.895	1.57350
25/03/2020	03:43	12:41	19h52m28s	-21°46'25"	68°51'09"	0.890	1.51679
01/04/2020	03:32	12:38	20h13m03s	-20°55'13"	70°54'44"	0.884	1.46062
08/04/2020	03:20	12:36	20h33m23s	-19°55'38"	72°56'26"	0.879	1.40517
15/04/2020	03:07	12:34	20h53m27s	-18°48'17"	74°56'29"	0.874	1.35054
22/04/2020	02:53	12:32	21h13m15s	-17°33'58"	76°55'29"	0.869	1.29673
29/04/2020	02:39	12:30	21h32m43s	-16°13'32"	78°53'51"	0.864	1.24387
06/05/2020	02:24	12:28	21h51m51s	-14°47'52"	80°51'44"	0.860	1.19209
13/05/2020	02:09	12:26	22h10m39s	-13°17'47"	82°49'37"	0.856	1.14142
20/05/2020	01:53	12:23	22h29m06s	-11°44'19"	84°48'25"	0.852	1.09182
27/05/2020	01:37	12:20	22h47m12s	-10°08'31"	86°49'04"	0.849	1.04332
03/06/2020	01:20	12:17	23h04m54s	-8°31'25"	88°52'09"	0.847	0.99601
10/06/2020	01:03	12:14	23h22m14s	-6°53'56"	90°58'26"	0.845	0.94988
17/06/2020	00:46	12:09	23h39m08s	-5°17'10"	93°09'24"	0.844	0.90483
24/06/2020	00:28	12:05	23h55m34s	-3°42'17"	95°26'40"	0.844	0.86086
01/07/2020	00:10	11:59	0h11m28s	-2°10'21"	97°51'35"	0.844	0.81804
08/07/2020	23:50	11:53	0h26m46s	-0°42'18"	100°25'34"	0.846	0.77636
15/07/2020	23:31	11:45	0h41m23s	0°40'49"	103°10'55"	0.850	0.73575
22/07/2020	23:12	11:36	0h55m10s	1°57'49"	106°10'31"	0.854	0.69624
29/07/2020	22:53	11:26	1h07m57s	3°07'43"	109°27'03"	0.860	0.65798
05/08/2020	22:32	11:14	1h19m34s	4°09'42"	113°03'15"	0.869	0.62108
12/08/2020	22:11	11:00	1h29m46s	5°02'52"	117°02'56"	0.879	0.58567
19/08/2020	21:49	10:44	1h38m17s	5°46'12"	121°30'58"	0.891	0.55197
26/08/2020	21:26	10:25	1h44m48s	6°18'54"	126°31'50"	0.905	0.52045
02/09/2020	21:01	10:03	1h49m01s	6°40'35"	132°09'22"	0.921	0.49165
09/09/2020	20:34	09:38	1h50m40s	6°50'55"	138°27'36"	0.939	0.46613
16/09/2020	20:05	09:09	1h49m34s	6°49'46"	145°29'45"	0.956	0.44470
23/09/2020	19:34	08:36	1h45m41s	6°38'02"	153°14'59"	0.973	0.42838
30/09/2020	19:02	08:01	1h39m24s	6°17'58"	161°36'06"	0.987	0.41818
07/10/2020	18:28	07:24	1h31m21s	5°52'53"	170°16'22"	0.996	0.41491
14/10/2020	17:53	06:46	1h22m26s	5°26'58"	177°00'20"	1.000	0.41924
21/10/2020	17:18	06:08	1h13m46s	5°05'09"	170°32'32"	0.997	0.43158
28/10/2020	16:45	05:33	1h06m24s	4°52'03"	162°00'47"	0.988	0.45180
04/11/2020	16:12	05:00	1h01m02s	4°50'28"	153°50'25"	0.976	0.47935
11/11/2020	15:41	04:30	0h58m04s	5°01'29"	146°13'41"	0.962	0.51357
18/11/2020	15:11	04:04	0h57m35s	5°25'10"	139°13'51"	0.948	0.55378
25/11/2020	14:44	03:41	0h59m33s	6°00'45"	132°50'28"	0.934	0.59915
02/12/2020	14:17	03:20	1h03m42s	6°46'38"	127°00'05"	0.922	0.64888
09/12/2020	13:52	03:03	1h09m46s	7°41'01"	121°38'01"	0.912	0.70239
16/12/2020	13:28	02:47	1h17m30s	8°42'22"	116°40'21"	0.903	0.75918
23/12/2020	13:05	02:33	1h26m42s	9°49'15"	112°03'57"	0.897	0.81871
30/12/2020	12:43	02:21	1h37m09s	11°00'07"	107°45'28"	0.892	0.88049

Jupiter

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2020	07:57	16:40	18h29m01s	-23°10'48"	3°20'42"	1.000	6.20960
08/01/2020	07:36	16:20	18h36m00s	-23°06'02"	8°52'10"	1.000	6.19507
15/01/2020	07:15	16:00	18h42m57s	-23°00'08"	14°24'07"	0.999	6.17011
22/01/2020	06:54	15:40	18h49m47s	-22°53'13"	19°57'00"	0.999	6.13489
29/01/2020	06:32	15:19	18h56m30s	-22°45'21"	25°31'03"	0.998	6.08961
05/02/2020	06:11	14:59	19h03m03s	-22°36'39"	31°06'22"	0.998	6.03466
12/02/2020	05:49	14:39	19h09m25s	-22°27'18"	36°43'11"	0.997	5.97061
19/02/2020	05:26	14:18	19h15m32s	-22°17'24"	42°22'05"	0.996	5.89794
26/02/2020	05:04	13:57	19h21m22s	-22°07'11"	48°03'31"	0.995	5.81721
04/03/2020	04:41	13:36	19h26m54s	-21°56'48"	53°47'38"	0.994	5.72919
11/03/2020	04:18	13:15	19h32m06s	-21°46'30"	59°34'48"	0.993	5.63475
18/03/2020	03:54	12:53	19h36m54s	-21°36'28"	65°25'39"	0.992	5.53472
25/03/2020	03:30	12:30	19h41m17s	-21°26'56"	71°20'52"	0.992	5.42999
01/04/2020	03:06	12:07	19h45m13s	-21°18'08"	77°20'48"	0.991	5.32166
08/04/2020	02:41	11:44	19h48m39s	-21°10'18"	83°25'48"	0.991	5.21091
15/04/2020	02:16	11:20	19h51m33s	-21°03'37"	89°36'36"	0.991	5.09889
22/04/2020	01:50	10:55	19h53m54s	-20°58'19"	95°53'59"	0.991	4.98677
29/04/2020	01:24	10:29	19h55m38s	-20°54'35"	102°18'21"	0.991	4.87596
06/05/2020	00:57	10:03	19h56m45s	-20°52'33"	108°49'55"	0.991	4.76790
13/05/2020	00:30	09:36	19h57m14s	-20°52'17"	115°29'09"	0.992	4.66396
20/05/2020	00:03	09:08	19h57m04s	-20°53'52"	122°16'35"	0.993	4.56554
27/05/2020	23:31	08:40	19h56m16s	-20°57'17"	129°12'17"	0.994	4.47418
03/06/2020	23:02	08:10	19h54m49s	-21°02'25"	136°15'49"	0.995	4.39136
10/06/2020	22:33	07:40	19h52m47s	-21°09'05"	143°26'47"	0.997	4.31841
17/06/2020	22:04	07:09	19h50m13s	-21°17'05"	150°44'55"	0.998	4.25655
24/06/2020	21:34	06:38	19h47m10s	-21°26'06"	158°09'18"	0.999	4.20699
01/07/2020	21:04	06:06	19h43m45s	-21°35'47"	165°38'22"	0.999	4.17072
08/07/2020	20:33	05:34	19h40m05s	-21°45'46"	173°10'31"	1.000	4.14836
15/07/2020	20:03	05:02	19h36m17s	-21°55'40"	179°10'36"	1.000	4.14030
22/07/2020	19:32	04:30	19h32m28s	-22°05'09"	171°39'35"	1.000	4.14675
29/07/2020	19:02	03:58	19h28m48s	-22°13'57"	164°06'44"	0.999	4.16757
05/08/2020	18:32	03:26	19h25m24s	-22°21'47"	156°37'10"	0.998	4.20221
12/08/2020	18:02	02:55	19h22m22s	-22°28'32"	149°12'08"	0.997	4.24990
19/08/2020	17:32	02:25	19h19m49s	-22°34'04"	141°52'40"	0.996	4.30975
26/08/2020	17:03	01:55	19h17m49s	-22°38'20"	134°40'00"	0.995	4.38060
02/09/2020	16:34	01:26	19h16m27s	-22°41'19"	127°34'59"	0.994	4.46105
09/09/2020	16:06	00:57	19h15m43s	-22°43'01"	120°37'47"	0.993	4.54967
16/09/2020	15:39	00:30	19h15m41s	-22°43'26"	113°48'19"	0.992	4.64509
23/09/2020	15:12	00:03	19h16m18s	-22°42'35"	107°06'44"	0.991	4.74581
30/09/2020	14:46	23:33	19h17m36s	-22°40'28"	100°33'03"	0.991	4.85025
07/10/2020	14:20	23:08	19h19m33s	-22°37'05"	94°06'46"	0.990	4.95698
14/10/2020	13:54	22:44	19h22m06s	-22°32'24"	87°47'14"	0.990	5.06468
21/10/2020	13:30	22:20	19h25m14s	-22°26'23"	81°34'04"	0.991	5.17199
28/10/2020	13:05	21:57	19h28m54s	-22°19'00"	75°27'01"	0.991	5.27756
04/11/2020	12:41	21:34	19h33m03s	-22°10'13"	69°25'31"	0.992	5.38023
11/11/2020	12:17	21:12	19h37m39s	-22°00'01"	63°28'49"	0.992	5.47896
18/11/2020	11:54	20:51	19h42m40s	-21°48'20"	57°36'28"	0.993	5.57272
25/11/2020	11:30	20:30	19h48m02s	-21°35'10"	51°48'15"	0.994	5.66047
02/12/2020	11:07	20:09	19h53m43s	-21°20'30"	46°03'47"	0.995	5.74140
09/12/2020	10:44	19:49	19h59m41s	-21°04'21"	40°22'26"	0.996	5.81482
16/12/2020	10:22	19:29	20h05m52s	-20°46'42"	34°43'48"	0.997	5.88004
23/12/2020	09:59	19:09	20h12m15s	-20°27'36"	29°07'45"	0.998	5.93639
30/12/2020	09:36	18:50	20h18m46s	-20°07'07"	23°34'07"	0.999	5.98342

Saturn

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2020	08:53	17:50	19h32m20s	-21°41'11"	11°21'27"	1.000	11.01426
08/01/2020	08:28	17:27	19h35m50s	-21°33'50"	5°02'47"	1.000	11.03045
15/01/2020	08:03	17:04	19h39m22s	-21°26'10"	1°15'23"	1.000	11.03393
22/01/2020	07:39	16:40	19h42m52s	-21°18'14"	7°33'23"	1.000	11.02462
29/01/2020	07:14	16:17	19h46m21s	-21°10'07"	13°51'26"	1.000	11.00258
05/02/2020	06:49	15:53	19h49m45s	-21°01'53"	20°09'30"	1.000	10.96806
12/02/2020	06:24	15:30	19h53m03s	-20°53'38"	26°27'44"	1.000	10.92158
19/02/2020	05:59	15:06	19h56m15s	-20°45'28"	32°46'38"	0.999	10.86365
26/02/2020	05:34	14:42	19h59m17s	-20°37'30"	39°06'27"	0.999	10.79486
04/03/2020	05:09	14:18	20h02m09s	-20°29'48"	45°27'12"	0.999	10.71606
11/03/2020	04:43	13:54	20h04m50s	-20°22'31"	51°49'02"	0.998	10.62826
18/03/2020	04:18	13:29	20h07m17s	-20°15'44"	58°12'26"	0.998	10.53248
25/03/2020	03:52	13:05	20h09m30s	-20°09'34"	64°37'49"	0.998	10.42979
01/04/2020	03:26	12:39	20h11m27s	-20°04'07"	71°05'15"	0.998	10.32149
08/04/2020	03:00	12:14	20h13m08s	-19°59'28"	77°34'51"	0.998	10.20899
15/04/2020	02:33	11:48	20h14m30s	-19°55'43"	84°07'01"	0.998	10.09368
22/04/2020	02:06	11:22	20h15m35s	-19°52'56"	90°42'14"	0.997	9.97694
29/04/2020	01:39	10:55	20h16m19s	-19°51'10"	97°20'35"	0.998	9.86037
06/05/2020	01:12	10:28	20h16m45s	-19°50'28"	104°02'02"	0.998	9.74561
13/05/2020	00:45	10:01	20h16m50s	-19°50'50"	110°46'48"	0.998	9.63417
20/05/2020	00:17	09:33	20h16m36s	-19°52'17"	117°35'15"	0.998	9.52755
27/05/2020	23:45	09:04	20h16m02s	-19°54'47"	124°27'21"	0.998	9.42738
03/06/2020	23:17	08:36	20h15m10s	-19°58'16"	131°22'46"	0.999	9.33519
10/06/2020	22:49	08:07	20h14m01s	-20°02'39"	138°21'23"	0.999	9.25234
17/06/2020	22:20	07:37	20h12m36s	-20°07'49"	145°23'18"	0.999	9.18006
24/06/2020	21:52	07:08	20h10m57s	-20°13'40"	152°28'13"	0.999	9.11958
01/07/2020	21:23	06:38	20h09m06s	-20°20'02"	159°35'27"	1.000	9.07194
08/07/2020	20:54	06:08	20h07m07s	-20°26'45"	166°44'28"	1.000	9.03787
15/07/2020	20:25	05:38	20h05m02s	-20°33'39"	173°54'59"	1.000	9.01790
22/07/2020	19:56	05:07	20h02m53s	-20°40'35"	178°51'34"	1.000	9.01245
29/07/2020	19:27	04:37	20h00m45s	-20°47'23"	171°40'47"	1.000	9.02166
05/08/2020	18:58	04:07	19h58m40s	-20°53'52"	164°29'19"	1.000	9.04531
12/08/2020	18:29	03:37	19h56m42s	-20°59'55"	157°18'35"	1.000	9.08296
19/08/2020	18:00	03:07	19h54m53s	-21°05'26"	150°08'59"	0.999	9.13407
26/08/2020	17:31	02:38	19h53m17s	-21°10'17"	143°01'15"	0.999	9.19782
02/09/2020	17:02	02:09	19h51m55s	-21°14'23"	135°55'59"	0.999	9.27307
09/09/2020	16:34	01:40	19h50m50s	-21°17'42"	128°53'21"	0.998	9.35858
16/09/2020	16:06	01:11	19h50m03s	-21°20'10"	121°53'23"	0.998	9.45309
23/09/2020	15:38	00:43	19h49m36s	-21°21'46"	114°56'25"	0.998	9.55514
30/09/2020	15:11	00:15	19h49m28s	-21°22'27"	108°02'50"	0.998	9.66308
07/10/2020	14:43	23:44	19h49m42s	-21°22'14"	101°12'32"	0.998	9.77531
14/10/2020	14:16	23:17	19h50m15s	-21°21'07"	94°25'15"	0.998	9.89029
21/10/2020	13:50	22:51	19h51m09s	-21°19'05"	87°41'00"	0.998	10.00637
28/10/2020	13:23	22:25	19h52m23s	-21°16'10"	80°59'57"	0.998	10.12187
04/11/2020	12:57	21:59	19h53m55s	-21°12'21"	74°21'56"	0.998	10.23522
11/11/2020	12:31	21:34	19h55m45s	-21°07'41"	67°46'30"	0.998	10.34501
18/11/2020	12:05	21:09	19h57m52s	-21°02'10"	61°13'30"	0.998	10.44979
25/11/2020	11:39	20:45	20h00m14s	-20°55'49"	54°43'00"	0.998	10.54814
02/12/2020	11:14	20:20	20h02m49s	-20°48'42"	48°14'52"	0.999	10.63885
09/12/2020	10:48	19:56	20h05m37s	-20°40'50"	41°48'41"	0.999	10.72088
16/12/2020	10:23	19:32	20h08m35s	-20°32'16"	35°24'09"	0.999	10.79321
23/12/2020	09:58	19:09	20h11m43s	-20°23'03"	29°01'21"	0.999	10.85490
30/12/2020	09:33	18:45	20h14m57s	-20°13'15"	22°40'12"	1.000	10.90525

Uranus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2020	12:59	02:46	2h02m39s	11°56'26"	112°40'22"	0.999	19.42073
08/01/2020	12:32	02:18	2h02m30s	11°55'49"	105°29'58"	0.999	19.53426
15/01/2020	12:04	01:51	2h02m30s	11°56'05"	98°22'19"	0.999	19.65172
22/01/2020	11:37	01:23	2h02m40s	11°57'14"	91°17'23"	0.999	19.77137
29/01/2020	11:09	00:56	2h03m00s	11°59'15"	84°15'27"	0.999	19.89139
05/02/2020	10:42	00:29	2h03m29s	12°02'06"	77°16'54"	0.999	20.00991
12/02/2020	10:15	00:03	2h04m08s	12°05'46"	70°21'48"	0.999	20.12522
19/02/2020	09:48	23:33	2h04m56s	12°10'11"	63°29'56"	1.000	20.23576
26/02/2020	09:21	23:06	2h05m51s	12°15'18"	56°41'17"	1.000	20.34001
04/03/2020	08:54	22:40	2h06m54s	12°21'03"	49°56'03"	1.000	20.43646
11/03/2020	08:27	22:14	2h08m04s	12°27'22"	43°14'14"	1.000	20.52389
18/03/2020	08:00	21:49	2h09m20s	12°34'09"	36°35'26"	1.000	20.60128
25/03/2020	07:34	21:23	2h10m41s	12°41'20"	29°59'25"	1.000	20.66765
01/04/2020	07:07	20:58	2h12m07s	12°48'51"	23°26'12"	1.000	20.72212
08/04/2020	06:40	20:32	2h13m36s	12°56'36"	16°55'44"	1.000	20.76413
15/04/2020	06:14	20:07	2h15m07s	13°04'31"	10°27'40"	1.000	20.79329
22/04/2020	05:47	19:41	2h16m40s	13°12'30"	4°02'05"	1.000	20.80928
29/04/2020	05:21	19:16	2h18m14s	13°20'29"	2°26'42"	1.000	20.81190
06/05/2020	04:54	18:50	2h19m47s	13°28'23"	8°48'11"	1.000	20.80122
13/05/2020	04:28	18:25	2h21m20s	13°36'07"	15°10'03"	1.000	20.77750
20/05/2020	04:01	18:00	2h22m50s	13°43'38"	21°31'34"	1.000	20.74104
27/05/2020	03:34	17:34	2h24m18s	13°50'52"	27°52'52"	1.000	20.69222
03/06/2020	03:08	17:08	2h25m42s	13°57'44"	34°14'04"	1.000	20.63174
10/06/2020	02:41	16:43	2h27m01s	14°04'10"	40°35'31"	1.000	20.56041
17/06/2020	02:14	16:17	2h28m15s	14°10'08"	46°57'52"	1.000	20.47904
24/06/2020	01:48	15:51	2h29m23s	14°15'34"	53°21'28"	1.000	20.38855
01/07/2020	01:21	15:25	2h30m24s	14°20'25"	59°46'26"	1.000	20.29014
08/07/2020	00:54	14:58	2h31m18s	14°24'39"	66°13'02"	0.999	20.18507
15/07/2020	00:27	14:32	2h32m04s	14°28'13"	72°41'51"	0.999	20.07457
22/07/2020	23:56	14:05	2h32m41s	14°31'05"	79°13'17"	0.999	19.96000
29/07/2020	23:29	13:38	2h33m10s	14°33'14"	85°47'24"	0.999	19.84290
05/08/2020	23:01	13:11	2h33m29s	14°34'39"	92°24'17"	0.999	19.72485
12/08/2020	22:34	12:44	2h33m39s	14°35'18"	99°04'25"	0.999	19.60737
19/08/2020	22:06	12:16	2h33m39s	14°35'13"	105°48'07"	0.999	19.49202
26/08/2020	21:39	11:48	2h33m30s	14°34'22"	112°35'20"	0.999	19.38050
02/09/2020	21:11	11:20	2h33m11s	14°32'47"	119°25'57"	1.000	19.27449
09/09/2020	20:43	10:52	2h32m43s	14°30'30"	126°20'10"	1.000	19.17546
16/09/2020	20:15	10:24	2h32m08s	14°27'33"	133°18'10"	1.000	19.08491
23/09/2020	19:47	09:55	2h31m24s	14°23'59"	140°19'44"	1.000	19.00434
30/09/2020	19:19	09:27	2h30m33s	14°19'53"	147°24'28"	1.000	18.93511
07/10/2020	18:51	08:58	2h29m37s	14°15'18"	154°32'14"	1.000	18.87827
14/10/2020	18:23	08:29	2h28m36s	14°10'21"	161°43'01"	1.000	18.83480
21/10/2020	17:55	08:00	2h27m31s	14°05'06"	168°56'20"	1.000	18.80556
28/10/2020	17:26	07:31	2h26m24s	13°59'41"	176°10'46"	1.000	18.79113
04/11/2020	16:58	07:02	2h25m17s	13°54'12"	176°28'23"	1.000	18.79173
11/11/2020	16:30	06:33	2h24m10s	13°48'47"	169°11'00"	1.000	18.80742
18/11/2020	16:02	06:04	2h23m05s	13°43'33"	161°51'36"	1.000	18.83807
25/11/2020	15:34	05:35	2h22m04s	13°38'36"	154°31'47"	1.000	18.88324
02/12/2020	15:05	05:06	2h21m07s	13°34'03"	147°12'15"	1.000	18.94209
09/12/2020	14:37	04:38	2h20m17s	13°30'01"	139°53'14"	1.000	19.01369
16/12/2020	14:09	04:09	2h19m34s	13°26'35"	132°35'04"	1.000	19.09695
23/12/2020	13:42	03:41	2h18m59s	13°23'51"	125°18'29"	1.000	19.19049
30/12/2020	13:14	03:13	2h18m33s	13°21'50"	118°03'59"	1.000	19.29269

Neptune

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2020	11:23	22:36	23h11m04s	-6°21'44"	66°15'50"	1.000	30.31552
08/01/2020	10:56	22:09	23h11m37s	-6°18'09"	59°16'42"	1.000	30.42353
15/01/2020	10:28	21:43	23h12m14s	-6°14'03"	52°19'11"	1.000	30.52410
22/01/2020	10:01	21:16	23h12m57s	-6°09'28"	45°23'08"	1.000	30.61588
29/01/2020	09:34	20:50	23h13m43s	-6°04'28"	38°28'39"	1.000	30.69751
05/02/2020	09:07	20:24	23h14m34s	-5°59'06"	31°36'06"	1.000	30.76783
12/02/2020	08:40	19:57	23h15m27s	-5°53'25"	24°45'31"	1.000	30.82595
19/02/2020	08:13	19:31	23h16m22s	-5°47'31"	17°56'46"	1.000	30.87119
26/02/2020	07:46	19:05	23h17m20s	-5°41'27"	11°10'09"	1.000	30.90291
04/03/2020	07:19	18:39	23h18m18s	-5°35'17"	4°28'29"	1.000	30.92069
11/03/2020	06:52	18:13	23h19m18s	-5°29'06"	2°35'09"	1.000	30.92445
18/03/2020	06:25	17:47	23h20m16s	-5°22'57"	9°08'44"	1.000	30.91426
25/03/2020	05:58	17:20	23h21m14s	-5°16'55"	15°48'46"	1.000	30.89024
01/04/2020	05:31	16:54	23h22m11s	-5°11'04"	22°28'23"	1.000	30.85275
08/04/2020	05:04	16:28	23h23m05s	-5°05'27"	29°06'58"	1.000	30.80246
15/04/2020	04:37	16:02	23h23m57s	-5°00'09"	35°44'45"	1.000	30.74011
22/04/2020	04:10	15:35	23h24m46s	-4°55'12"	42°22'03"	1.000	30.66651
29/04/2020	03:43	15:09	23h25m31s	-4°50'40"	48°58'54"	1.000	30.58265
06/05/2020	03:16	14:42	23h26m11s	-4°46'37"	55°35'15"	1.000	30.48978
13/05/2020	02:49	14:15	23h26m47s	-4°43'03"	62°11'27"	1.000	30.38918
20/05/2020	02:22	13:49	23h27m18s	-4°40'03"	68°47'56"	1.000	30.28210
27/05/2020	01:54	13:22	23h27m44s	-4°37'37"	75°24'51"	1.000	30.16999
03/06/2020	01:27	12:55	23h28m04s	-4°35'47"	82°02'10"	1.000	30.05445
10/06/2020	01:00	12:27	23h28m19s	-4°34'34"	88°40'06"	1.000	29.93704
17/06/2020	00:32	12:00	23h28m28s	-4°33'59"	95°19'08"	1.000	29.81927
24/06/2020	00:05	11:33	23h28m30s	-4°34'02"	101°59'26"	1.000	29.70274
01/07/2020	23:33	11:05	23h28m27s	-4°34'43"	108°40'56"	1.000	29.58916
08/07/2020	23:06	10:37	23h28m18s	-4°35'59"	115°23'42"	1.000	29.48010
15/07/2020	22:38	10:09	23h28m04s	-4°37'51"	122°08'08"	1.000	29.37702
22/07/2020	22:10	09:41	23h27m44s	-4°40'16"	128°54'26"	1.000	29.28139
29/07/2020	21:43	09:13	23h27m19s	-4°43'11"	135°42'24"	1.000	29.19471
05/08/2020	21:15	08:45	23h26m50s	-4°46'32"	142°31'57"	1.000	29.11824
12/08/2020	20:47	08:17	23h26m17s	-4°50'18"	149°23'19"	1.000	29.05305
19/08/2020	20:19	07:48	23h25m41s	-4°54'22"	156°16'36"	1.000	29.00018
26/08/2020	19:51	07:20	23h25m02s	-4°58'43"	163°11'23"	1.000	28.96056
02/09/2020	19:23	06:51	23h24m21s	-5°03'13"	170°06'48"	1.000	28.93481
09/09/2020	18:56	06:23	23h23m39s	-5°07'48"	176°56'33"	1.000	28.92332
16/09/2020	18:28	05:54	23h22m56s	-5°12'24"	175°41'38"	1.000	28.92637
23/09/2020	18:00	05:26	23h22m14s	-5°16'55"	168°45'18"	1.000	28.94408
30/09/2020	17:32	04:57	23h21m33s	-5°21'16"	161°43'42"	1.000	28.97621
07/10/2020	17:04	04:29	23h20m54s	-5°25'21"	154°40'23"	1.000	29.02225
14/10/2020	16:36	04:00	23h20m18s	-5°29'07"	147°35'45"	1.000	29.08163
21/10/2020	16:08	03:32	23h19m45s	-5°32'28"	140°30'12"	1.000	29.15356
28/10/2020	15:40	03:04	23h19m16s	-5°35'22"	133°24'14"	1.000	29.23691
04/11/2020	15:13	02:36	23h18m52s	-5°37'43"	126°18'06"	1.000	29.33039
11/11/2020	14:45	02:08	23h18m34s	-5°39'30"	119°11'45"	1.000	29.43265
18/11/2020	14:17	01:40	23h18m21s	-5°40'40"	112°05'21"	1.000	29.54221
25/11/2020	13:50	01:12	23h18m14s	-5°41'12"	104°59'25"	1.000	29.65733
02/12/2020	13:22	00:45	23h18m13s	-5°41'04"	97°54'13"	1.000	29.77622
09/12/2020	12:55	00:17	23h18m19s	-5°40'16"	90°49'41"	1.000	29.89716
16/12/2020	12:27	23:46	23h18m30s	-5°38'48"	83°45'53"	1.000	30.01838
23/12/2020	12:00	23:19	23h18m48s	-5°36'41"	76°43'16"	1.000	30.13797
30/12/2020	11:33	22:52	23h19m12s	-5°33'56"	69°42'05"	1.000	30.25414

Pluto

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2020	09:00	17:52	19h37m10s	-22°13'16"	12°23'34"	1.000	34.91072
08/01/2020	08:33	17:26	19h38m09s	-22°11'34"	5°30'50"	1.000	34.93417
15/01/2020	08:07	17:00	19h39m10s	-22°09'51"	1°34'25"	1.000	34.94334
22/01/2020	07:40	16:33	19h40m10s	-22°08'08"	8°20'38"	1.000	34.93815
29/01/2020	07:13	16:07	19h41m10s	-22°06'26"	15°13'18"	1.000	34.91868
05/02/2020	06:47	15:40	19h42m08s	-22°04'48"	22°05'55"	1.000	34.88530
12/02/2020	06:20	15:14	19h43m03s	-22°03'15"	28°58'06"	1.000	34.83868
19/02/2020	05:53	14:47	19h43m56s	-22°01'48"	35°50'02"	1.000	34.77954
26/02/2020	05:26	14:21	19h44m45s	-22°00'31"	42°41'43"	1.000	34.70871
04/03/2020	04:59	13:54	19h45m31s	-21°59'23"	49°32'53"	1.000	34.62735
11/03/2020	04:33	13:27	19h46m12s	-21°58'27"	56°23'28"	1.000	34.53677
18/03/2020	04:06	13:00	19h46m48s	-21°57'44"	63°13'42"	1.000	34.43831
25/03/2020	03:38	12:33	19h47m18s	-21°57'14"	70°03'46"	1.000	34.33335
01/04/2020	03:11	12:06	19h47m43s	-21°56'59"	76°53'28"	1.000	34.22352
08/04/2020	02:44	11:39	19h48m02s	-21°57'00"	83°42'41"	1.000	34.11053
15/04/2020	02:17	11:12	19h48m15s	-21°57'16"	90°31'41"	1.000	33.99598
22/04/2020	01:49	10:44	19h48m22s	-21°57'48"	97°20'41"	1.000	33.88151
29/04/2020	01:22	10:17	19h48m23s	-21°58'36"	104°09'37"	1.000	33.76886
06/05/2020	00:55	09:49	19h48m18s	-21°59'40"	110°58'18"	1.000	33.65976
13/05/2020	00:27	09:21	19h48m07s	-22°00'57"	117°46'54"	1.000	33.55575
20/05/2020	23:55	08:53	19h47m51s	-22°02'29"	124°35'44"	1.000	33.45831
27/05/2020	23:28	08:25	19h47m29s	-22°04'14"	131°24'45"	1.000	33.36895
03/06/2020	23:00	07:57	19h47m03s	-22°06'09"	138°13'45"	1.000	33.28909
10/06/2020	22:32	07:29	19h46m32s	-22°08'15"	145°02'45"	1.000	33.21983
17/06/2020	22:04	07:01	19h45m57s	-22°10'28"	151°52'04"	1.000	33.16219
24/06/2020	21:36	06:32	19h45m20s	-22°12'47"	158°41'39"	1.000	33.11714
01/07/2020	21:08	06:04	19h44m40s	-22°15'10"	165°31'02"	1.000	33.08544
08/07/2020	20:40	05:35	19h43m58s	-22°17'36"	172°19'21"	1.000	33.06754
15/07/2020	20:12	05:07	19h43m16s	-22°20'01"	178°44'12"	1.000	33.06373
22/07/2020	19:44	04:39	19h42m33s	-22°22'25"	173°50'13"	1.000	33.07425
29/07/2020	19:16	04:10	19h41m51s	-22°24'44"	167°01'35"	1.000	33.09904
05/08/2020	18:48	03:42	19h41m10s	-22°26'58"	160°11'04"	1.000	33.13775
12/08/2020	18:20	03:13	19h40m32s	-22°29'05"	153°19'50"	1.000	33.18988
19/08/2020	17:52	02:45	19h39m56s	-22°31'02"	146°27'59"	1.000	33.25485
26/08/2020	17:24	02:17	19h39m24s	-22°32'49"	139°35'47"	1.000	33.33183
02/09/2020	16:56	01:49	19h38m56s	-22°34'25"	132°43'30"	1.000	33.41969
09/09/2020	16:29	01:21	19h38m33s	-22°35'48"	125°50'58"	1.000	33.51726
16/09/2020	16:01	00:53	19h38m15s	-22°36'58"	118°57'59"	1.000	33.62328
23/09/2020	15:33	00:25	19h38m02s	-22°37'53"	112°04'42"	1.000	33.73631
30/09/2020	15:06	23:53	19h37m56s	-22°38'35"	105°11'21"	1.000	33.85471
07/10/2020	14:38	23:26	19h37m55s	-22°39'01"	98°17'52"	1.000	33.97683
14/10/2020	14:11	22:58	19h38m01s	-22°39'13"	91°23'59"	1.000	34.10109
21/10/2020	13:43	22:31	19h38m13s	-22°39'10"	84°29'47"	1.000	34.22574
28/10/2020	13:16	22:04	19h38m30s	-22°38'53"	77°35'33"	1.000	34.34896
04/11/2020	12:49	21:37	19h38m54s	-22°38'22"	70°41'16"	1.000	34.46904
11/11/2020	12:22	21:10	19h39m24s	-22°37'37"	63°46'44"	1.000	34.58442
18/11/2020	11:55	20:43	19h39m59s	-22°36'40"	56°51'56"	1.000	34.69344
25/11/2020	11:28	20:16	19h40m39s	-22°35'31"	49°57'10"	1.000	34.79452
02/12/2020	11:01	19:50	19h41m24s	-22°34'12"	43°02'34"	1.000	34.88629
09/12/2020	10:34	19:23	19h42m13s	-22°32'43"	36°07'56"	1.000	34.96757
16/12/2020	10:07	18:57	19h43m05s	-22°31'06"	29°13'17"	1.000	35.03720
23/12/2020	09:41	18:30	19h44m00s	-22°29'23"	22°18'58"	1.000	35.09418
30/12/2020	09:14	18:04	19h44m58s	-22°27'34"	15°25'25"	1.000	35.13780

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
Local Time = UT + 1.00 hours Elevation: 470 meters

Planet Apsides Report for 2020

Earth

04/01/2020	Perihelion	Distance from Sun:	0.98 AU
04/07/2020	Aphelion	Distance from Sun:	1.02 AU

Mercury

12/02/2020	Perihelion	Distance from Sun:	0.31 AU
10/05/2020	Perihelion	Distance from Sun:	0.31 AU
06/08/2020	Perihelion	Distance from Sun:	0.31 AU
02/11/2020	Perihelion	Distance from Sun:	0.31 AU
27/03/2020	Aphelion	Distance from Sun:	0.47 AU
23/06/2020	Aphelion	Distance from Sun:	0.47 AU
19/09/2020	Aphelion	Distance from Sun:	0.47 AU
16/12/2020	Aphelion	Distance from Sun:	0.47 AU

Venus

20/03/2020	Perihelion	Distance from Sun:	0.72 AU
30/10/2020	Perihelion	Distance from Sun:	0.72 AU
10/07/2020	Aphelion	Distance from Sun:	0.73 AU

Mars

03/08/2020	Perihelion	Distance from Sun:	1.38 AU
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Jupiter

No Apsis

Saturn

No Apsis

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
Local Time = UT + 1.00 hours Elevation: 470 meters

Planet Conjunction/Opposition Report for 01/01/2020 to 31/12/2020

Mercury

Date	Hour	Event
11/01/2020	0	Superior Conjunction
26/02/2020	3	Inferior Conjunction
05/05/2020	0	Superior Conjunction (Occultation)
01/07/2020	3	Inferior Conjunction
18/08/2020	0	Superior Conjunction
26/10/2020	0	Inferior Conjunction
20/12/2020	3	Superior Conjunction

Venus

Date	Hour	Event
04/06/2020	0	Inferior Conjunction

Mars

Date	Hour	Event
14/10/2020	0	Opposition

Jupiter

Date	Hour	Event
14/07/2020	9	Opposition

Saturn

Date	Hour	Event
14/01/2020	0	Conjunction (Occultation)
21/07/2020	0	Opposition

Uranus

Date	Hour	Event
26/04/2020	9	Conjunction
01/11/2020	0	Opposition

Neptune

Date	Hour	Event
09/03/2020	0	Conjunction
12/09/2020	0	Opposition

Pluto

Date	Hour	Event
14/01/2020	0	Conjunction
16/07/2020	0	Opposition

Planet Data Report

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

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
Local Time = UT + 1.00 hours Elevation: 470 meters

Moon Apisdes Report for 01/01/2020 to 31/12/2020

Date	Hour	Apsis	Distance (km)	Diameter
02/01/2020	3	Apogee	404588	0.4922°
13/01/2020	21	Perigee	365951	0.5442°
29/01/2020	22	Apogee	405379	0.4913°
10/02/2020	21	Perigee	360479	0.5525°
26/02/2020	12	Apogee	406272	0.4902°
10/03/2020	7	Perigee	357152	0.5576°
24/03/2020	16	Apogee	406694	0.4897°
07/04/2020	19	Perigee	356928	0.5580°
20/04/2020	20	Apogee	406458	0.4900°
06/05/2020	4	Perigee	359664	0.5537°
18/05/2020	9	Apogee	405593	0.4910°
03/06/2020	5	Perigee	364370	0.5466°
15/06/2020	2	Apogee	404608	0.4922°
30/06/2020	3	Perigee	368948	0.5398°
12/07/2020	20	Apogee	404209	0.4927°
25/07/2020	6	Perigee	368364	0.5407°
09/08/2020	15	Apogee	404675	0.4921°
21/08/2020	12	Perigee	363525	0.5478°
06/09/2020	8	Apogee	405615	0.4910°
18/09/2020	15	Perigee	359090	0.5546°
03/10/2020	19	Apogee	406317	0.4902°
17/10/2020	1	Perigee	356925	0.5580°
30/10/2020	20	Apogee	406396	0.4901°
14/11/2020	13	Perigee	357854	0.5565°
27/11/2020	2	Apogee	405890	0.4907°
12/12/2020	22	Perigee	361777	0.5505°
24/12/2020	18	Apogee	405014	0.4917°

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
Local Time = UT + 1.00 hours Elevation: 470 meters

Moon Nodes Report for 01/01/2020 to 31/12/2020

Date	Time	Node	Illuminated Fraction
10/01/2020	00:28	Ascending	0.99
22/01/2020	21:31	Descending	0.04
06/02/2020	09:58	Ascending	0.89
19/02/2020	01:11	Descending	0.19
04/03/2020	15:57	Ascending	0.69
17/03/2020	01:59	Descending	0.43
31/03/2020	17:50	Ascending	0.43
13/04/2020	03:57	Descending	0.68
27/04/2020	18:53	Ascending	0.20
10/05/2020	10:00	Descending	0.88
24/05/2020	22:33	Ascending	0.05
06/06/2020	19:09	Descending	0.99
21/06/2020	05:23	Ascending	0.00
04/07/2020	04:17	Descending	0.99
18/07/2020	13:32	Ascending	0.05
31/07/2020	10:31	Descending	0.89
14/08/2020	20:21	Ascending	0.21
27/08/2020	12:51	Descending	0.69
11/09/2020	00:04	Ascending	0.44
23/09/2020	13:32	Descending	0.44
08/10/2020	01:28	Ascending	0.69
20/10/2020	16:52	Descending	0.21
04/11/2020	03:38	Ascending	0.89
17/11/2020	01:06	Descending	0.05
01/12/2020	08:45	Ascending	0.99
14/12/2020	12:02	Descending	0.00
28/12/2020	16:02	Ascending	0.98

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
Local Time = UT + 1.00 hours Elevation: 470 meters

Meteor Showers Report for 01/01/2020 to 31/12/2020

Date	Meteor Shower	ZHR	RA	DEC	Illum. Frac.	Longitude
05/01/2020	Quadrantids	80	15h28m	50°	0.67	284°
12/04/2020	Virginids	5	14h04m	-9°	0.79	22°
22/04/2020	Lyrids	12	18h08m	32°	0.01	32°
28/04/2020	alpha-Scorpiids	5	16h32m	-24°	0.22	38°
05/05/2020	eta-Aquarids	35	22h20m	-1°	0.91	45°
13/05/2020	alpha-Scorpiids	5	16h04m	-24°	0.65	52°
10/06/2020	Ophiuchids	5	17h56m	-23°	0.80	79°
20/06/2020	Ophiuchids	5	17h20m	-20°	0.02	89°
08/07/2020	Capricornids	5			0.91	106°
15/07/2020	Capricornids	5	20h44m	-15°	0.31	113°
21/07/2020	alpha-Cygnids	5	21h00m	48°	0.00	118°
26/07/2020	Capricornids	5	21h00m	-15°	0.33	123°
29/07/2020	delta-Aquarids	20	22h36m	-17°	0.67	126°
31/07/2020	Piscis Australids	5	22h40m	-30°	0.86	128°
02/08/2020	alpha-Capricornids	5	20h36m	-10°	0.97	130°
06/08/2020	iota-Aquarids	8	22h10m	-15°	0.94	134°
13/08/2020	Perseids	75	3h04m	58°	0.37	140°
21/08/2020	alpha-Cygnids	5	21h00m	48°	0.05	148°
08/09/2020	Piscids	10	0h36m	7°	0.72	166°
21/09/2020	Piscids	5	0h24m	0°	0.18	178°
13/10/2020	Piscids	??	1h44m	14°	0.20	200°
22/10/2020	Orionids	25	6h24m	15°	0.34	209°
03/11/2020	Taurids	8	3h44m	14°	0.95	221°
18/11/2020	Leonids	10	10h08m	22°	0.11	236°
09/12/2020	Puppids-Velids	15	9h00m	-48°	0.39	257°
14/12/2020	Geminids	75	7h28m	32°	0.01	262°
23/12/2020	Ursids	5	14h28m	78°	0.60	271°
26/12/2020	Puppids-Velids	15	9h20m	-65°	0.85	274°

Grange Obs. Latitude: 45°08'32" N Longitude: 7°08'26" E
 Local Time = UT + 1.00 hours Elevation: 470 meters

Twilight Report for 01/01/2020 to 31/12/2020

Date	Sun		Astronomical		Nautical		Civil	
	Rise	Set	Begin	End	Begin	End	Begin	End
01/01/2020	08:10	16:59	06:18	18:52	06:54	18:16	07:31	17:39
08/01/2020	08:10	17:06	06:19	18:58	06:54	18:22	07:31	17:45
15/01/2020	08:07	17:15	06:17	19:05	06:52	18:29	07:29	17:53
22/01/2020	08:02	17:24	06:14	19:12	06:49	18:37	07:25	18:02
29/01/2020	07:56	17:34	06:09	19:21	06:43	18:46	07:19	18:11
05/02/2020	07:48	17:44	06:02	19:29	06:37	18:55	07:11	18:20
12/02/2020	07:38	17:54	05:54	19:38	06:28	19:04	07:03	18:29
19/02/2020	07:27	18:04	05:44	19:47	06:18	19:13	06:53	18:39
26/02/2020	07:16	18:14	05:33	19:56	06:07	19:22	06:41	18:48
04/03/2020	07:04	18:23	05:21	20:06	05:56	19:31	06:29	18:57
11/03/2020	06:51	18:33	05:08	20:15	05:43	19:41	06:17	19:07
18/03/2020	06:38	18:42	04:54	20:25	05:30	19:50	06:04	19:16
25/03/2020	06:25	18:51	04:40	20:36	05:16	20:00	05:50	19:25
01/04/2020	06:11	19:00	04:25	20:47	05:02	20:10	05:37	19:34
08/04/2020	05:59	19:09	04:09	20:58	04:47	20:20	05:24	19:44
15/04/2020	05:46	19:18	03:53	21:10	04:33	20:30	05:10	19:53
22/04/2020	05:34	19:26	03:37	21:23	04:19	20:41	04:58	20:03
29/04/2020	05:23	19:35	03:21	21:37	04:06	20:53	04:46	20:13
06/05/2020	05:13	19:44	03:06	21:51	03:53	21:04	04:35	20:22
13/05/2020	05:04	19:52	02:51	22:06	03:41	21:15	04:25	20:32
20/05/2020	04:56	20:00	02:37	22:20	03:31	21:26	04:16	20:41
27/05/2020	04:51	20:07	02:24	22:34	03:22	21:36	04:09	20:49
03/06/2020	04:46	20:13	02:14	22:46	03:16	21:44	04:04	20:56
10/06/2020	04:44	20:18	02:07	22:55	03:12	21:50	04:01	21:01
17/06/2020	04:44	20:21	02:04	23:01	03:11	21:55	04:00	21:05
24/06/2020	04:45	20:23	02:05	23:03	03:12	21:56	04:02	21:06
01/07/2020	04:48	20:22	02:11	22:59	03:16	21:55	04:05	21:05
08/07/2020	04:53	20:20	02:21	22:52	03:23	21:50	04:11	21:02
15/07/2020	04:59	20:16	02:33	22:42	03:31	21:44	04:17	20:57
22/07/2020	05:06	20:09	02:46	22:29	03:40	21:35	04:25	20:50
29/07/2020	05:13	20:02	03:00	22:15	03:51	21:24	04:34	20:41
05/08/2020	05:21	19:53	03:14	22:00	04:02	21:13	04:43	20:31
12/08/2020	05:30	19:42	03:28	21:44	04:12	21:00	04:52	20:20
19/08/2020	05:38	19:31	03:41	21:28	04:23	20:46	05:02	20:07
26/08/2020	05:46	19:19	03:53	21:12	04:34	20:32	05:11	19:55
02/09/2020	05:55	19:06	04:05	20:56	04:44	20:18	05:20	19:41
09/09/2020	06:03	18:53	04:16	20:40	04:53	20:03	05:29	19:28
16/09/2020	06:12	18:40	04:27	20:25	05:03	19:49	05:37	19:14
23/09/2020	06:20	18:26	04:37	20:10	05:12	19:35	05:46	19:00
30/09/2020	06:29	18:13	04:46	19:56	05:21	19:21	05:55	18:47
07/10/2020	06:37	18:00	04:55	19:42	05:29	19:08	06:03	18:34
14/10/2020	06:46	17:48	05:04	19:30	05:38	18:56	06:12	18:22
21/10/2020	06:56	17:36	05:13	19:19	05:47	18:45	06:21	18:10
28/10/2020	07:05	17:25	05:21	19:08	05:55	18:34	06:30	18:00
04/11/2020	07:15	17:15	05:30	19:00	06:04	18:26	06:39	17:51
11/11/2020	07:24	17:06	05:38	18:53	06:12	18:18	06:48	17:43
18/11/2020	07:34	16:59	05:46	18:47	06:21	18:12	06:57	17:36
25/11/2020	07:43	16:54	05:54	18:43	06:29	18:08	07:05	17:32
02/12/2020	07:51	16:50	06:01	18:41	06:36	18:06	07:13	17:29
09/12/2020	07:59	16:49	06:07	18:41	06:42	18:05	07:19	17:28
16/12/2020	08:04	16:50	06:12	18:43	06:48	18:07	07:25	17:30
23/12/2020	08:08	16:53	06:16	18:46	06:51	18:10	07:29	17:33
30/12/2020	08:10	16:58	06:18	18:51	06:54	18:15	07:31	17:38