

Grange Observatory

**ASTRONOMICAL ALMANAC  
FOR YEAR 2024**

## Introduction to Reports Generated by Astronomy Lab 2

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

Abbreviations used in reports:

AU	Astronomical Units
CET	Central European Time
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 01/01/2024 to 31/12/2024

January                    2024

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

February 2024

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

March 2024

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

April 2024

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

May 2024

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

June 2024

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



July 2024

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

August                      2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
-----						
				1	2	3
				SR: 05:17	SR: 05:18	SR: 05:19
				SS: 19:58	SS: 19:57	SS: 19:55
				MR: 01:33	MR: 02:34	MR: 03:41
				MS: 18:33	MS: 19:19	MS: 19:54
-----						
4	5	6	7	8	9	10
SR: 05:20	SR: 05:21	SR: 05:23	SR: 05:24	SR: 05:25	SR: 05:26	SR: 05:27
SS: 19:54	SS: 19:53	SS: 19:51	SS: 19:50	SS: 19:48	SS: 19:47	SS: 19:45
MR: 04:52	MR: 06:02	MR: 07:09	MR: 08:15	MR: 09:18	MR: 10:21	MR: 11:25
MS: 20:21	MS: 20:43	MS: 21:01	MS: 21:17	MS: 21:32	MS: 21:47	MS: 22:04
NM: 12:14						
-----						
11	12	13	14	15	16	17
SR: 05:29	SR: 05:30	SR: 05:31	SR: 05:32	SR: 05:33	SR: 05:34	SR: 05:36
SS: 19:44	SS: 19:42	SS: 19:41	SS: 19:39	SS: 19:38	SS: 19:36	SS: 19:34
MR: 12:31	MR: 13:39	MR: 14:48	MR: 15:58	MR: 17:02	MR: 17:58	MR: 18:43
MS: 22:24	MS: 22:48	MS: 23:18	MS: 24:00	MS: None	MS: 00:54	MS: 02:02
	FQ: 16:20					
-----						
18	19	20	21	22	23	24
SR: 05:37	SR: 05:38	SR: 05:39	SR: 05:40	SR: 05:42	SR: 05:43	SR: 05:44
SS: 19:33	SS: 19:31	SS: 19:29	SS: 19:28	SS: 19:26	SS: 19:24	SS: 19:22
MR: 19:18	MR: 19:46	MR: 20:09	MR: 20:30	MR: 20:50	MR: 21:11	MR: 21:36
MS: 03:21	MS: 04:45	MS: 06:10	MS: 07:33	MS: 08:55	MS: 10:17	MS: 11:38
	FM: 19:29					
-----						
25	26	27	28	29	30	31
SR: 05:45	SR: 05:46	SR: 05:48	SR: 05:49	SR: 05:50	SR: 05:51	SR: 05:52
SS: 19:21	SS: 19:19	SS: 19:17	SS: 19:15	SS: 19:14	SS: 19:12	SS: 19:10
MR: 22:05	MR: 22:42	MR: 23:29	MR: None	MR: 00:26	MR: 01:32	MR: 02:41
MS: 12:59	MS: 14:17	MS: 15:29	MS: 16:31	MS: 17:20	MS: 17:57	MS: 18:26
	LQ: 10:29					
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September 2024

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

October 2024

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

November 2024

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

December 2024

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

Grange Obs.                    Latitude: 45°08'32" N   Longitude: 7°08'26" E  
Local Time = UT +    1,00 hours   Elevation: 470 meters

Seasons Report for 2024

MEQ: 20/03/2024 04:01	Winter Length:	88,99 days
JSO: 20/06/2024 21:50	Spring Length:	92,74 days
SEQ: 22/09/2024 13:41	Summer Length:	93,66 days
DSO: 21/12/2024 10:18	Autumn Length:	89,86 days

Dates of Easter Report for 2024

31/03/2024



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 2024

Lunar eclipse on 18/09/2024  
Moon rise: 18:52  
Moon set: 06:25  
Magnitude: 0,08  
Partial phase begins: 03:18  
Time of maximum eclipse: 03:47  
Partial phase ends: 04:17

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 2024

Solar eclipse on 08/04/2024

Sun rise: 05:58

Sun set: 19:09

Time of maximum eclipse: 19:21

Eclipse is total

Eclipse is visible in the northern hemisphere

Solar eclipse on 02/10/2024

Sun rise: 06:31

Sun set: 18:09

Time of maximum eclipse: 19:46

Eclipse is annular

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 01/01/2024 to 31/12/2024

Mercury

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST (AU)
01/01/2024	06:40	15:52	17h27m07s	-20°09'23"	18°01'10"	0,270	0,77767
08/01/2024	06:27	15:31	17h36m07s	-21°01'51"	22°51'37"	0,520	0,92147
15/01/2024	06:33	15:27	18h04m12s	-22°12'47"	23°22'06"	0,684	1,05772
22/01/2024	06:47	15:34	18h41m39s	-22°54'40"	21°51'20"	0,788	1,17090
29/01/2024	07:01	15:50	19h23m53s	-22°45'58"	19°17'51"	0,856	1,25966
05/02/2024	07:12	16:14	20h08m40s	-21°36'57"	16°02'37"	0,906	1,32544
12/02/2024	07:20	16:44	20h54m54s	-19°22'55"	12°10'41"	0,945	1,36907
19/02/2024	07:23	17:20	21h42m01s	-16°01'42"	7°41'04"	0,976	1,38935
26/02/2024	07:24	18:00	22h29m50s	-11°32'58"	2°47'50"	0,996	1,38168
04/03/2024	07:22	18:45	23h18m19s	-6°00'40"	4°23'44"	0,988	1,33628
11/03/2024	07:17	19:31	0h06m30s	0°17'36"	10°42'22"	0,909	1,23886
18/03/2024	07:08	20:12	0h50m35s	6°32'12"	16°19'04"	0,708	1,08314
25/03/2024	06:52	20:34	1h22m53s	11°20'21"	18°42'02"	0,424	0,89520
01/04/2024	06:28	20:24	1h36m03s	13°29'22"	15°44'21"	0,172	0,72586
08/04/2024	05:58	19:43	1h29m15s	12°30'52"	7°14'07"	0,026	0,61442
15/04/2024	05:28	18:44	1h12m37s	9°16'39"	5°27'28"	0,012	0,57608
22/04/2024	05:02	17:54	1h01m31s	6°03'57"	15°52'04"	0,101	0,60264
29/04/2024	04:43	17:25	1h03m48s	4°36'48"	22°47'22"	0,226	0,67288
06/05/2024	04:29	17:17	1h18m55s	5°10'28"	25°57'03"	0,350	0,76831
13/05/2024	04:17	17:25	1h44m06s	7°20'56"	26°07'17"	0,467	0,87819
20/05/2024	04:09	17:46	2h17m35s	10°40'22"	23°56'09"	0,586	0,99650
27/05/2024	04:06	18:19	2h59m09s	14°42'58"	19°42'49"	0,716	1,11707
03/06/2024	04:09	19:03	3h49m43s	18°58'06"	13°34'21"	0,856	1,22770
10/06/2024	04:23	19:55	4h49m52s	22°38'39"	5°45'55"	0,972	1,30469
17/06/2024	04:52	20:44	5h56m25s	24°42'15"	3°08'29"	0,992	1,32040
24/06/2024	05:30	21:19	7h01m35s	24°33'07"	11°08'49"	0,907	1,27172
01/07/2024	06:11	21:36	7h59m03s	22°30'49"	17°44'36"	0,785	1,18294
08/07/2024	06:48	21:38	8h46m54s	19°18'12"	22°37'25"	0,668	1,07772
15/07/2024	07:16	21:30	9h25m15s	15°33'45"	25°44'48"	0,560	0,96874
22/07/2024	07:33	21:14	9h54m08s	11°49'05"	26°56'00"	0,453	0,86194
29/07/2024	07:37	20:51	10h12m37s	8°35'15"	25°43'18"	0,336	0,76174
05/08/2024	07:23	20:19	10h18m27s	6°30'17"	21°20'17"	0,205	0,67547
12/08/2024	06:47	19:42	10h09m27s	6°19'49"	13°08'22"	0,076	0,61831
19/08/2024	05:50	19:03	9h49m18s	8°22'53"	4°31'03"	0,010	0,61581
26/08/2024	04:55	18:34	9h33m24s	11°25'13"	11°40'51"	0,088	0,69202
02/09/2024	04:25	18:21	9h38m38s	13°13'46"	17°27'59"	0,319	0,84500
09/09/2024	04:31	18:20	10h08m08s	12°26'17"	17°13'45"	0,622	1,03699
16/09/2024	05:03	18:22	10h52m23s	9°02'45"	12°46'38"	0,859	1,21042
23/09/2024	05:44	18:22	11h40m16s	4°05'06"	6°50'50"	0,971	1,32947
30/09/2024	06:25	18:18	12h26m32s	-1°22'26"	1°32'13"	0,999	1,39441
07/10/2024	07:03	18:13	13h10m27s	-6°43'16"	4°37'57"	0,991	1,41786
14/10/2024	07:38	18:07	13h52m44s	-11°40'00"	9°10'40"	0,968	1,40980
21/10/2024	08:11	18:02	14h34m13s	-16°03'18"	13°12'46"	0,936	1,37551
28/10/2024	08:42	17:58	15h15m25s	-19°46'08"	16°44'32"	0,894	1,31671
04/11/2024	09:10	17:57	15h56m15s	-22°41'02"	19°43'12"	0,833	1,23271
11/11/2024	09:31	17:59	16h35m22s	-24°39'10"	21°53'20"	0,741	1,12168
18/11/2024	09:41	17:59	17h08m50s	-25°30'19"	22°27'56"	0,591	0,98347
25/11/2024	09:27	17:51	17h27m12s	-25°02'52"	19°26'50"	0,351	0,82855
02/12/2024	08:35	17:19	17h14m49s	-23°00'37"	9°19'07"	0,069	0,70243
09/12/2024	07:15	16:30	16h37m23s	-19°52'45"	7°07'45"	0,041	0,69315
16/12/2024	06:26	15:53	16h20m11s	-18°33'39"	18°20'27"	0,316	0,81194
23/12/2024	06:18	15:36	16h34m17s	-19°37'54"	21°54'20"	0,578	0,97020
30/12/2024	06:31	15:32	17h05m37s	-21°27'09"	21°27'43"	0,741	1,11264

## Venus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2024	05:11	14:38	16h03m49s	-18°46'22"	37°28'02"	0,779	1,18202
08/01/2024	05:27	14:39	16h39m23s	-20°24'59"	36°03'33"	0,798	1,22530
15/01/2024	05:42	14:42	17h15m46s	-21°36'43"	34°36'46"	0,817	1,26708
22/01/2024	05:55	14:48	17h52m45s	-22°18'33"	33°07'58"	0,834	1,30738
29/01/2024	06:05	14:57	18h30m04s	-22°28'30"	31°37'15"	0,851	1,34622
05/02/2024	06:13	15:09	19h07m24s	-22°05'42"	30°04'57"	0,866	1,38354
12/02/2024	06:18	15:23	19h44m27s	-21°10'32"	28°31'17"	0,880	1,41926
19/02/2024	06:20	15:39	20h20m56s	-19°44'36"	26°56'16"	0,894	1,45337
26/02/2024	06:19	15:56	20h56m40s	-17°50'29"	25°19'50"	0,906	1,48591
04/03/2024	06:15	16:14	21h31m33s	-15°31'23"	23°42'02"	0,918	1,51684
11/03/2024	06:10	16:33	22h05m35s	-12°51'04"	22°03'00"	0,929	1,54604
18/03/2024	06:03	16:51	22h38m49s	-9°53'33"	20°22'39"	0,940	1,57345
25/03/2024	05:55	17:09	23h11m23s	-6°42'57"	18°40'49"	0,949	1,59906
01/04/2024	05:46	17:27	23h43m27s	-3°23'20"	16°57'32"	0,958	1,62284
08/04/2024	05:36	17:45	0h15m16s	0°01'19"	15°12'54"	0,966	1,64462
15/04/2024	05:27	18:03	0h47m01s	3°26'55"	13°26'51"	0,974	1,66428
22/04/2024	05:17	18:21	1h18m56s	6°49'23"	11°39'18"	0,980	1,68176
29/04/2024	05:08	18:39	1h51m14s	10°04'43"	9°50'18"	0,986	1,69700
06/05/2024	05:00	18:58	2h24m09s	13°08'51"	8°00'01"	0,991	1,70986
13/05/2024	04:54	19:17	2h57m50s	15°57'35"	6°08'30"	0,994	1,72017
20/05/2024	04:49	19:35	3h32m22s	18°26'42"	4°15'46"	0,997	1,72785
27/05/2024	04:47	19:53	4h07m49s	20°32'09"	2°21'57"	0,999	1,73288
03/06/2024	04:47	20:10	4h44m07s	22°10'14"	0°27'28"	1,000	1,73517
10/06/2024	04:51	20:25	5h21m08s	23°17'39"	1°28'10"	1,000	1,73458
17/06/2024	04:58	20:38	5h58m37s	23°52'00"	3°24'02"	0,998	1,73108
24/06/2024	05:08	20:48	6h36m15s	23°51'54"	5°20'20"	0,996	1,72470
01/07/2024	05:21	20:54	7h13m43s	23°17'11"	7°16'41"	0,992	1,71548
08/07/2024	05:36	20:57	7h50m42s	22°08'53"	9°12'52"	0,987	1,70337
15/07/2024	05:54	20:57	8h26m57s	20°29'10"	11°08'45"	0,981	1,68840
22/07/2024	06:12	20:54	9h02m17s	18°21'03"	13°04'09"	0,974	1,67068
29/07/2024	06:31	20:48	9h36m39s	15°48'10"	14°58'44"	0,966	1,65036
05/08/2024	06:49	20:41	10h10m04s	12°54'25"	16°52'16"	0,956	1,62751
12/08/2024	07:08	20:32	10h42m39s	9°43'59"	18°44'38"	0,946	1,60219
19/08/2024	07:26	20:22	11h14m32s	6°21'03"	20°35'44"	0,935	1,57455
26/08/2024	07:45	20:12	11h45m56s	2°49'44"	22°25'16"	0,923	1,54480
02/09/2024	08:03	20:01	12h17m05s	-0°45'58"	24°13'00"	0,910	1,51307
09/09/2024	08:21	19:50	12h48m13s	-4°21'59"	25°58'54"	0,896	1,47941
16/09/2024	08:39	19:39	13h19m34s	-7°54'11"	27°42'55"	0,882	1,44396
23/09/2024	08:57	19:29	13h51m21s	-11°18'25"	29°24'47"	0,867	1,40691
30/09/2024	09:16	19:21	14h23m48s	-14°30'32"	31°04'15"	0,851	1,36840
07/10/2024	09:35	19:13	14h57m05s	-17°26'12"	32°41'18"	0,835	1,32845
14/10/2024	09:54	19:08	15h31m16s	-20°01'02"	34°15'51"	0,818	1,28712
21/10/2024	10:12	19:05	16h06m23s	-22°10'47"	35°47'34"	0,800	1,24457
28/10/2024	10:29	19:05	16h42m22s	-23°51'35"	37°16'05"	0,782	1,20090
04/11/2024	10:44	19:08	17h18m59s	-25°00'11"	38°41'13"	0,762	1,15614
11/11/2024	10:56	19:15	17h55m58s	-25°34'11"	40°02'45"	0,742	1,11028
18/11/2024	11:05	19:25	18h32m53s	-25°32'26"	41°20'03"	0,721	1,06343
25/11/2024	11:11	19:37	19h09m20s	-24°55'12"	42°32'24"	0,698	1,01571
02/12/2024	11:12	19:52	19h44m57s	-23°44'00"	43°39'10"	0,675	0,96714
09/12/2024	11:10	20:08	20h19m23s	-22°01'36"	44°39'35"	0,650	0,91772
16/12/2024	11:04	20:24	20h52m22s	-19°51'43"	45°32'23"	0,623	0,86755
23/12/2024	10:56	20:39	21h23m45s	-17°18'40"	46°15'48"	0,594	0,81678
30/12/2024	10:45	20:54	21h53m26s	-14°26'59"	46°48'00"	0,564	0,76553

## Mars

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2024	07:21	15:56	17h48m14s	-23°57'50"	12°44'18"	0,995	2,42380
08/01/2024	07:17	15:51	18h11m03s	-24°02'05"	14°39'58"	0,993	2,40191
15/01/2024	07:11	15:48	18h34m00s	-23°53'47"	16°33'31"	0,991	2,37883
22/01/2024	07:05	15:45	18h57m00s	-23°32'50"	18°24'42"	0,988	2,35477
29/01/2024	06:57	15:43	19h19m58s	-22°59'18"	20°13'24"	0,986	2,32993
05/02/2024	06:49	15:42	19h42m51s	-22°13'27"	21°59'42"	0,983	2,30445
12/02/2024	06:39	15:42	20h05m33s	-21°15'43"	23°43'38"	0,980	2,27838
19/02/2024	06:28	15:43	20h28m03s	-20°06'42"	25°25'04"	0,977	2,25188
26/02/2024	06:16	15:44	20h50m15s	-18°47'10"	27°03'56"	0,974	2,22513
04/03/2024	06:04	15:45	21h12m11s	-17°17'57"	28°40'26"	0,971	2,19825
11/03/2024	05:50	15:47	21h33m48s	-15°39'58"	30°14'46"	0,967	2,17125
18/03/2024	05:36	15:48	21h55m06s	-13°54'19"	31°47'00"	0,964	2,14419
25/03/2024	05:21	15:50	22h16m05s	-12°02'03"	33°17'10"	0,960	2,11722
01/04/2024	05:06	15:51	22h36m47s	-10°04'13"	34°45'32"	0,956	2,09040
08/04/2024	04:51	15:52	22h57m15s	-8°01'57"	36°12'31"	0,952	2,06366
15/04/2024	04:35	15:54	23h17m28s	-5°56'23"	37°38'22"	0,948	2,03701
22/04/2024	04:19	15:55	23h37m30s	-3°48'40"	39°03'12"	0,945	2,01050
29/04/2024	04:02	15:56	23h57m22s	-1°39'50"	40°27'22"	0,941	1,98413
06/05/2024	03:46	15:56	0h17m09s	0°29'03"	41°51'22"	0,937	1,95779
13/05/2024	03:29	15:57	0h36m50s	2°36'55"	43°15'38"	0,933	1,93139
20/05/2024	03:13	15:58	0h56m30s	4°42'41"	44°40'21"	0,929	1,90490
27/05/2024	02:57	15:58	1h16m09s	6°45'27"	46°05'51"	0,925	1,87831
03/06/2024	02:41	15:58	1h35m50s	8°44'16"	47°32'44"	0,921	1,85143
10/06/2024	02:25	15:59	1h55m33s	10°38'12"	49°01'30"	0,917	1,82412
17/06/2024	02:09	15:58	2h15m21s	12°26'23"	50°32'25"	0,913	1,79632
24/06/2024	01:54	15:58	2h35m12s	14°08'04"	52°05'46"	0,909	1,76796
01/07/2024	01:39	15:58	2h55m09s	15°42'34"	53°42'09"	0,906	1,73888
08/07/2024	01:25	15:57	3h15m09s	17°09'14"	55°22'09"	0,902	1,70889
15/07/2024	01:11	15:55	3h35m10s	18°27'28"	57°06'08"	0,898	1,67791
22/07/2024	00:58	15:53	3h55m13s	19°36'55"	58°54'20"	0,895	1,64589
29/07/2024	00:46	15:50	4h15m13s	20°37'15"	60°47'20"	0,892	1,61269
05/08/2024	00:34	15:47	4h35m08s	21°28'19"	62°45'51"	0,889	1,57813
12/08/2024	00:22	15:43	4h54m53s	22°10'03"	64°50'21"	0,886	1,54215
19/08/2024	00:11	15:37	5h14m25s	22°42'34"	67°01'11"	0,883	1,50474
26/08/2024	00:01	15:31	5h33m40s	23°06'11"	69°18'55"	0,880	1,46583
02/09/2024	23:49	15:24	5h52m32s	23°21'17"	71°44'30"	0,878	1,42528
09/09/2024	23:40	15:15	6h10m56s	23°28'27"	74°18'42"	0,877	1,38310
16/09/2024	23:30	15:05	6h28m46s	23°28'26"	77°02'05"	0,875	1,33937
23/09/2024	23:20	14:54	6h45m59s	23°22'05"	79°55'30"	0,875	1,29411
30/09/2024	23:10	14:42	7h02m27s	23°10'26"	83°00'18"	0,875	1,24732
07/10/2024	22:59	14:28	7h18m05s	22°54'38"	86°17'54"	0,876	1,19911
14/10/2024	22:48	14:14	7h32m46s	22°35'59"	89°49'32"	0,877	1,14974
21/10/2024	22:35	13:58	7h46m23s	22°15'51"	93°36'43"	0,880	1,09941
28/10/2024	22:22	13:41	7h58m48s	21°55'47"	97°41'46"	0,884	1,04835
04/11/2024	22:07	13:23	8h09m51s	21°37'28"	102°07'25"	0,890	0,99691
11/11/2024	21:50	13:03	8h19m20s	21°22'42"	106°56'18"	0,897	0,94566
18/11/2024	21:30	12:43	8h27m05s	21°13'12"	112°11'18"	0,905	0,89522
25/11/2024	21:08	12:20	8h32m49s	21°10'49"	117°56'15"	0,916	0,84622
02/12/2024	20:43	11:57	8h36m17s	21°17'14"	124°15'25"	0,928	0,79959
09/12/2024	20:15	11:31	8h37m12s	21°33'39"	131°12'09"	0,942	0,75652
16/12/2024	19:43	11:04	8h35m21s	22°00'22"	138°48'20"	0,957	0,71831
23/12/2024	19:07	10:35	8h30m38s	22°36'32"	147°04'20"	0,971	0,68630
30/12/2024	18:28	10:04	8h23m07s	23°19'46"	155°56'34"	0,984	0,66203

## Jupiter

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2024	13:10	02:59	2h14m36s	12°15'16"	115°29'35"	0,992	4,48027
08/01/2024	12:42	02:32	2h14m58s	12°19'25"	108°28'05"	0,991	4,58496
15/01/2024	12:15	02:06	2h15m59s	12°26'53"	101°36'35"	0,991	4,69394
22/01/2024	11:49	01:41	2h17m38s	12°37'27"	94°55'15"	0,990	4,80552
29/01/2024	11:22	01:17	2h19m52s	12°50'53"	88°23'42"	0,990	4,91816
05/02/2024	10:56	00:53	2h22m39s	13°06'55"	82°01'16"	0,990	5,03051
12/02/2024	10:31	00:30	2h25m58s	13°25'16"	75°47'30"	0,991	5,14125
19/02/2024	10:06	00:08	2h29m46s	13°45'38"	69°42'11"	0,991	5,24907
26/02/2024	09:41	23:43	2h34m00s	14°07'42"	63°44'47"	0,992	5,35287
04/03/2024	09:16	23:22	2h38m38s	14°31'09"	57°54'32"	0,993	5,45172
11/03/2024	08:52	23:01	2h43m38s	14°55'43"	52°10'49"	0,994	5,54475
18/03/2024	08:28	22:41	2h48m57s	15°21'06"	46°33'19"	0,995	5,63109
25/03/2024	08:04	22:21	2h54m34s	15°47'03"	41°01'36"	0,996	5,71005
01/04/2024	07:40	22:02	3h00m26s	16°13'17"	35°34'58"	0,997	5,78114
08/04/2024	07:17	21:42	3h06m31s	16°39'36"	30°12'45"	0,997	5,84387
15/04/2024	06:53	21:23	3h12m48s	17°05'46"	24°54'36"	0,998	5,89773
22/04/2024	06:30	21:04	3h19m14s	17°31'34"	19°40'12"	0,999	5,94241
29/04/2024	06:07	20:45	3h25m49s	17°56'51"	14°28'59"	0,999	5,97775
06/05/2024	05:44	20:26	3h32m29s	18°21'27"	9°20'26"	1,000	6,00355
13/05/2024	05:22	20:07	3h39m14s	18°45'12"	4°15'16"	1,000	6,01961
20/05/2024	04:59	19:48	3h46m02s	19°07'59"	1°09'41"	1,000	6,02590
27/05/2024	04:37	19:29	3h52m52s	19°29'41"	6°01'27"	1,000	6,02252
03/06/2024	04:14	19:10	3h59m40s	19°50'14"	11°04'33"	1,000	6,00953
10/06/2024	03:52	18:51	4h06m27s	20°09'31"	16°08'41"	0,999	5,98697
17/06/2024	03:30	18:31	4h13m10s	20°27'30"	21°13'38"	0,999	5,95503
24/06/2024	03:07	18:12	4h19m47s	20°44'08"	26°19'50"	0,998	5,91406
01/07/2024	02:45	17:52	4h26m16s	20°59'24"	31°28'00"	0,997	5,86434
08/07/2024	02:22	17:32	4h32m36s	21°13'16"	36°38'50"	0,996	5,80614
15/07/2024	02:00	17:12	4h38m44s	21°25'46"	41°52'46"	0,995	5,73990
22/07/2024	01:37	16:51	4h44m38s	21°36'53"	47°10'18"	0,994	5,66621
29/07/2024	01:15	16:30	4h50m16s	21°46'41"	52°32'16"	0,994	5,58560
05/08/2024	00:52	16:08	4h55m36s	21°55'13"	57°59'33"	0,993	5,49861
12/08/2024	00:28	15:46	5h00m34s	22°02'31"	63°32'43"	0,992	5,40600
19/08/2024	00:05	15:24	5h05m09s	22°08'41"	69°12'16"	0,991	5,30863
26/08/2024	23:38	15:01	5h09m18s	22°13'47"	74°59'05"	0,991	5,20739
02/09/2024	23:13	14:37	5h12m57s	22°17'54"	80°54'08"	0,990	5,10315
09/09/2024	22:49	14:13	5h16m04s	22°21'07"	86°58'05"	0,990	4,99706
16/09/2024	22:23	13:48	5h18m37s	22°23'31"	93°11'23"	0,990	4,89037
23/09/2024	21:58	13:23	5h20m33s	22°25'12"	99°34'43"	0,990	4,78436
30/09/2024	21:31	12:56	5h21m49s	22°26'12"	106°08'56"	0,991	4,68034
07/10/2024	21:04	12:29	5h22m24s	22°26'34"	112°54'31"	0,992	4,57983
14/10/2024	20:36	12:02	5h22m17s	22°26'21"	119°51'25"	0,993	4,48448
21/10/2024	20:08	11:33	5h21m27s	22°25'32"	126°59'39"	0,994	4,39586
28/10/2024	19:39	11:04	5h19m56s	22°24'08"	134°19'17"	0,995	4,31553
04/11/2024	19:09	10:34	5h17m44s	22°22'07"	141°49'54"	0,996	4,24512
11/11/2024	18:39	10:04	5h14m57s	22°19'28"	149°30'14"	0,998	4,18623
18/11/2024	18:09	09:32	5h11m39s	22°16'11"	157°18'49"	0,999	4,14015
25/11/2024	17:38	09:01	5h07m56s	22°12'18"	165°14'11"	0,999	4,10795
02/12/2024	17:07	08:29	5h03m58s	22°07'53"	173°13'57"	1,000	4,09056
09/12/2024	16:36	07:57	4h59m52s	22°03'05"	178°31'02"	1,000	4,08856
16/12/2024	16:04	07:25	4h55m49s	21°58'06"	170°35'40"	1,000	4,10203
23/12/2024	15:34	06:53	4h51m57s	21°53'10"	162°34'49"	0,999	4,13069
30/12/2024	15:03	06:22	4h48m24s	21°48'33"	154°37'32"	0,998	4,17403

## Saturn

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2024	10:58	21:26	22h23m23s	-11°49'06"	53°17'18"	0,998	10,31563
08/01/2024	10:32	21:02	22h25m49s	-11°34'36"	46°48'08"	0,999	10,40450
15/01/2024	10:06	20:38	22h28m27s	-11°19'01"	40°22'00"	0,999	10,48439
22/01/2024	09:40	20:15	22h31m14s	-11°02'31"	33°59'01"	0,999	10,55430
29/01/2024	09:14	19:51	22h34m09s	-10°45'14"	27°39'00"	0,999	10,61349
05/02/2024	08:48	19:28	22h37m11s	-10°27'18"	21°21'42"	1,000	10,66137
12/02/2024	08:23	19:05	22h40m18s	-10°08'51"	15°07'13"	1,000	10,69735
19/02/2024	07:57	18:42	22h43m28s	-9°50'03"	8°57'01"	1,000	10,72102
26/02/2024	07:31	18:19	22h46m40s	-9°31'04"	3°04'07"	1,000	10,73225
04/03/2024	07:06	17:56	22h49m53s	-9°12'02"	3°55'19"	1,000	10,73099
11/03/2024	06:40	17:33	22h53m04s	-8°53'05"	9°51'35"	1,000	10,71723
18/03/2024	06:14	17:10	22h56m14s	-8°34'23"	15°56'48"	1,000	10,69113
25/03/2024	05:49	16:46	22h59m19s	-8°16'06"	22°02'55"	1,000	10,65308
01/04/2024	05:23	16:23	23h02m19s	-7°58'23"	28°09'20"	0,999	10,60357
08/04/2024	04:57	16:00	23h05m13s	-7°41'21"	34°16'15"	0,999	10,54309
15/04/2024	04:31	15:36	23h07m59s	-7°25'10"	40°23'48"	0,999	10,47229
22/04/2024	04:05	15:12	23h10m36s	-7°10'00"	46°32'05"	0,999	10,39204
29/04/2024	03:39	14:48	23h13m03s	-6°55'58"	52°41'35"	0,998	10,30327
06/05/2024	03:13	14:23	23h15m19s	-6°43'11"	58°52'55"	0,998	10,20688
13/05/2024	02:47	13:59	23h17m21s	-6°31'49"	65°06'27"	0,998	10,10394
20/05/2024	02:20	13:34	23h19m10s	-6°21'58"	71°22'20"	0,998	9,99571
27/05/2024	01:54	13:08	23h20m44s	-6°13'45"	77°41'00"	0,997	9,88347
03/06/2024	01:27	12:42	23h22m02s	-6°07'15"	84°03'05"	0,997	9,76846
10/06/2024	01:00	12:16	23h23m04s	-6°02'33"	90°29'01"	0,997	9,65207
17/06/2024	00:33	11:50	23h23m49s	-5°59'44"	96°58'51"	0,997	9,53583
24/06/2024	00:06	11:23	23h24m15s	-5°58'49"	103°32'50"	0,997	9,42127
01/07/2024	23:35	10:55	23h24m24s	-5°59'48"	110°11'27"	0,998	9,30981
08/07/2024	23:07	10:27	23h24m15s	-6°02'42"	116°54'59"	0,998	9,20299
15/07/2024	22:40	09:59	23h23m48s	-6°07'27"	123°43'18"	0,998	9,10245
22/07/2024	22:12	09:30	23h23m04s	-6°13'56"	130°36'11"	0,998	9,00966
29/07/2024	21:44	09:01	23h22m03s	-6°22'02"	137°33'47"	0,999	8,92597
05/08/2024	21:16	08:32	23h20m48s	-6°31'35"	144°35'59"	0,999	8,85274
12/08/2024	20:48	08:02	23h19m19s	-6°42'22"	151°42'08"	0,999	8,79128
19/08/2024	20:19	07:32	23h17m39s	-6°54'07"	158°51'15"	1,000	8,74261
26/08/2024	19:51	07:02	23h15m50s	-7°06'34"	166°01'51"	1,000	8,70754
02/09/2024	19:22	06:31	23h13m55s	-7°19'24"	173°07'49"	1,000	8,68673
09/09/2024	18:53	06:01	23h11m57s	-7°32'19"	177°39'39"	1,000	8,68068
16/09/2024	18:25	05:31	23h09m59s	-7°44'57"	171°33'27"	1,000	8,68952
23/09/2024	17:56	05:00	23h08m04s	-7°57'00"	164°20'36"	1,000	8,71304
30/09/2024	17:28	04:30	23h06m14s	-8°08'09"	157°02'31"	1,000	8,75091
07/10/2024	16:59	04:00	23h04m34s	-8°18'09"	149°43'43"	0,999	8,80256
14/10/2024	16:31	03:31	23h03m05s	-8°26'43"	142°26'01"	0,999	8,86707
21/10/2024	16:03	03:02	23h01m50s	-8°33'40"	135°10'15"	0,999	8,94325
28/10/2024	15:34	02:33	23h00m50s	-8°38'50"	127°56'48"	0,998	9,02987
04/11/2024	15:06	02:04	23h00m08s	-8°42'07"	120°46'11"	0,998	9,12556
11/11/2024	14:39	01:36	22h59m44s	-8°43'24"	113°39'03"	0,998	9,22868
18/11/2024	14:11	01:09	22h59m39s	-8°42'40"	106°35'46"	0,998	9,33752
25/11/2024	13:43	00:42	22h59m53s	-8°39'55"	99°36'16"	0,997	9,45046
02/12/2024	13:16	00:15	23h00m26s	-8°35'11"	92°40'37"	0,997	9,56582
09/12/2024	12:49	23:45	23h01m19s	-8°28'31"	85°49'07"	0,997	9,68184
16/12/2024	12:22	23:19	23h02m30s	-8°20'00"	79°01'55"	0,997	9,79679
23/12/2024	11:55	22:54	23h03m58s	-8°09'44"	72°18'46"	0,998	9,90916
30/12/2024	11:29	22:29	23h05m42s	-7°57'50"	65°39'26"	0,998	10,01747

## Uranus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2024	13:40	04:15	3h08m03s	17°16'48"	129°19'37"	1,000	18,97753
08/01/2024	13:12	03:47	3h07m30s	17°14'45"	122°03'29"	1,000	19,07468
15/01/2024	12:45	03:19	3h07m07s	17°13'22"	114°49'42"	0,999	19,17988
22/01/2024	12:17	02:51	3h06m54s	17°12'39"	107°38'53"	0,999	19,29133
29/01/2024	11:49	02:23	3h06m51s	17°12'38"	100°31'18"	0,999	19,40723
05/02/2024	11:22	01:56	3h06m58s	17°13'19"	93°26'56"	0,999	19,52585
12/02/2024	10:55	01:29	3h07m16s	17°14'43"	86°25'55"	0,999	19,64541
19/02/2024	10:27	01:02	3h07m45s	17°16'47"	79°28'37"	0,999	19,76403
26/02/2024	10:00	00:35	3h08m23s	17°19'30"	72°35'11"	0,999	19,87997
04/03/2024	09:33	00:09	3h09m10s	17°22'50"	65°45'22"	0,999	19,99168
11/03/2024	09:06	23:39	3h10m06s	17°26'44"	58°59'02"	1,000	20,09764
18/03/2024	08:40	23:13	3h11m11s	17°31'09"	52°16'18"	1,000	20,19634
25/03/2024	08:13	22:47	3h12m22s	17°36'01"	45°37'12"	1,000	20,28650
01/04/2024	07:46	22:21	3h13m40s	17°41'16"	39°01'21"	1,000	20,36708
08/04/2024	07:20	21:55	3h15m05s	17°46'51"	32°28'23"	1,000	20,43709
15/04/2024	06:53	21:30	3h16m34s	17°52'41"	25°58'13"	1,000	20,49562
22/04/2024	06:27	21:04	3h18m06s	17°58'42"	19°30'47"	1,000	20,54201
29/04/2024	06:00	20:39	3h19m42s	18°04'51"	13°05'43"	1,000	20,57584
06/05/2024	05:34	20:13	3h21m20s	18°11'05"	6°42'30"	1,000	20,59676
13/05/2024	05:08	19:48	3h23m00s	18°17'18"	0°25'45"	1,000	20,60447
20/05/2024	04:41	19:22	3h24m39s	18°23'27"	6°00'25"	1,000	20,59895
27/05/2024	04:15	18:57	3h26m17s	18°29'29"	12°19'39"	1,000	20,58041
03/06/2024	03:49	18:32	3h27m54s	18°35'21"	18°38'37"	1,000	20,54907
10/06/2024	03:22	18:06	3h29m29s	18°41'00"	24°57'37"	1,000	20,50525
17/06/2024	02:56	17:40	3h31m00s	18°46'23"	31°16'46"	1,000	20,44951
24/06/2024	02:29	17:15	3h32m26s	18°51'27"	37°36'23"	1,000	20,38260
01/07/2024	02:03	16:49	3h33m47s	18°56'09"	43°57'06"	1,000	20,30528
08/07/2024	01:36	16:23	3h35m03s	19°00'28"	50°19'23"	1,000	20,21840
15/07/2024	01:09	15:57	3h36m11s	19°04'21"	56°43'23"	1,000	20,12304
22/07/2024	00:42	15:31	3h37m12s	19°07'46"	63°09'19"	0,999	20,02042
29/07/2024	00:16	15:04	3h38m04s	19°10'42"	69°37'43"	0,999	19,91177
05/08/2024	23:45	14:38	3h38m48s	19°13'07"	76°09'04"	0,999	19,79835
12/08/2024	23:18	14:11	3h39m23s	19°15'00"	82°43'30"	0,999	19,68167
19/08/2024	22:50	13:44	3h39m47s	19°16'21"	89°21'02"	0,999	19,56331
26/08/2024	22:23	13:17	3h40m02s	19°17'08"	96°02'03"	0,999	19,44480
02/09/2024	21:56	12:49	3h40m07s	19°17'21"	102°46'58"	0,999	19,32770
09/09/2024	21:28	12:21	3h40m01s	19°17'01"	109°35'47"	0,999	19,21370
16/09/2024	21:00	11:54	3h39m46s	19°16'07"	116°28'18"	0,999	19,10453
23/09/2024	20:32	11:25	3h39m20s	19°14'41"	123°24'37"	1,000	19,00176
30/09/2024	20:04	10:57	3h38m46s	19°12'45"	130°24'57"	1,000	18,90689
07/10/2024	19:36	10:29	3h38m02s	19°10'18"	137°29'09"	1,000	18,82150
14/10/2024	19:08	10:00	3h37m11s	19°07'26"	144°36'45"	1,000	18,74704
21/10/2024	18:40	09:31	3h36m13s	19°04'11"	151°47'29"	1,000	18,68467
28/10/2024	18:12	09:03	3h35m10s	19°00'36"	159°01'20"	1,000	18,63542
04/11/2024	17:43	08:34	3h34m02s	18°56'45"	166°17'57"	1,000	18,60026
11/11/2024	17:15	08:05	3h32m52s	18°52'43"	173°36'31"	1,000	18,57986
18/11/2024	16:47	07:36	3h31m40s	18°48'36"	179°00'45"	1,000	18,57456
25/11/2024	16:18	07:07	3h30m29s	18°44'29"	171°41'05"	1,000	18,58445
02/12/2024	15:50	06:38	3h29m19s	18°40'26"	164°18'45"	1,000	18,60951
09/12/2024	15:22	06:09	3h28m12s	18°36'35"	156°56'15"	1,000	18,64936
16/12/2024	14:53	05:40	3h27m11s	18°32'59"	149°34'20"	1,000	18,70326
23/12/2024	14:25	05:11	3h26m15s	18°29'45"	142°13'18"	1,000	18,77029
30/12/2024	13:57	04:43	3h25m27s	18°26'57"	134°53'30"	1,000	18,84939



## Neptune

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
01/01/2024	11:42	23:22	23h43m55s	-3°05'22"	75°02'36"	1,000	30,14253
08/01/2024	11:15	22:55	23h44m20s	-3°02'25"	68°01'33"	1,000	30,25772
15/01/2024	10:48	22:28	23h44m51s	-2°58'52"	61°02'01"	1,000	30,36747
22/01/2024	10:20	22:02	23h45m27s	-2°54'47"	54°04'24"	1,000	30,47010
29/01/2024	09:53	21:35	23h46m07s	-2°50'11"	47°08'47"	1,000	30,56422
05/02/2024	09:26	21:09	23h46m52s	-2°45'10"	40°14'59"	1,000	30,64859
12/02/2024	08:59	20:42	23h47m41s	-2°39'45"	33°23'02"	1,000	30,72201
19/02/2024	08:32	20:16	23h48m33s	-2°34'01"	26°33'15"	1,000	30,78343
26/02/2024	08:05	19:50	23h49m28s	-2°28'03"	19°45'48"	1,000	30,83212
04/03/2024	07:38	19:24	23h50m24s	-2°21'54"	13°00'47"	1,000	30,86754
11/03/2024	07:11	18:58	23h51m22s	-2°15'38"	6°19'54"	1,000	30,88923
18/03/2024	06:44	18:31	23h52m21s	-2°09'20"	1°18'55"	1,000	30,89691
25/03/2024	06:17	18:05	23h53m19s	-2°03'05"	7°17'06"	1,000	30,89062
01/04/2024	05:50	17:39	23h54m17s	-1°56'55"	13°53'41"	1,000	30,87059
08/04/2024	05:23	17:13	23h55m14s	-1°50'55"	20°31'02"	1,000	30,83708
15/04/2024	04:56	16:47	23h56m09s	-1°45'10"	27°07'49"	1,000	30,79055
22/04/2024	04:29	16:20	23h57m01s	-1°39'43"	33°43'41"	1,000	30,73176
29/04/2024	04:02	15:54	23h57m50s	-1°34'36"	40°18'53"	1,000	30,66159
06/05/2024	03:35	15:28	23h58m36s	-1°29'54"	46°53'48"	1,000	30,58092
13/05/2024	03:08	15:01	23h59m18s	-1°25'40"	53°28'36"	1,000	30,49080
20/05/2024	02:41	14:34	23h59m55s	-1°21'56"	60°03'14"	1,000	30,39254
27/05/2024	02:14	14:08	0h00m28s	-1°18'45"	66°37'59"	1,000	30,28749
03/06/2024	01:46	13:41	0h00m55s	-1°16'08"	73°13'19"	1,000	30,17696
10/06/2024	01:19	13:14	0h01m17s	-1°14'07"	79°49'29"	1,000	30,06240
17/06/2024	00:52	12:46	0h01m33s	-1°12'44"	86°26'26"	1,000	29,94544
24/06/2024	00:24	12:19	0h01m44s	-1°11'58"	93°04'20"	1,000	29,82768
01/07/2024	23:53	11:52	0h01m49s	-1°11'51"	99°43'38"	1,000	29,71063
08/07/2024	23:25	11:24	0h01m48s	-1°12'22"	106°24'37"	1,000	29,59588
15/07/2024	22:58	10:56	0h01m41s	-1°13'30"	113°07'11"	1,000	29,48512
22/07/2024	22:30	10:29	0h01m28s	-1°15'14"	119°51'19"	1,000	29,37991
29/07/2024	22:03	10:01	0h01m10s	-1°17'31"	126°37'22"	1,000	29,28168
05/08/2024	21:35	09:32	0h00m47s	-1°20'20"	133°25'34"	1,000	29,19185
12/08/2024	21:07	09:04	0h00m19s	-1°23'38"	140°15'46"	1,000	29,11185
19/08/2024	20:39	08:36	23h59m48s	-1°27'20"	147°07'44"	1,000	29,04290
26/08/2024	20:11	08:08	23h59m12s	-1°31'23"	154°01'33"	1,000	28,98597
02/09/2024	19:44	07:39	23h58m34s	-1°35'43"	160°57'16"	1,000	28,94198
09/09/2024	19:16	07:11	23h57m54s	-1°40'16"	167°54'07"	1,000	28,91176
16/09/2024	18:48	06:42	23h57m12s	-1°44'54"	174°48'16"	1,000	28,89584
23/09/2024	18:20	06:14	23h56m29s	-1°49'34"	177°35'47"	1,000	28,89443
30/09/2024	17:52	05:45	23h55m47s	-1°54'11"	170°50'31"	1,000	28,90768
07/10/2024	17:24	05:17	23h55m06s	-1°58'39"	163°48'10"	1,000	28,93555
14/10/2024	16:56	04:48	23h54m26s	-2°02'53"	156°43'16"	1,000	28,97764
21/10/2024	16:28	04:20	23h53m49s	-2°06'47"	149°37'06"	1,000	29,03329
28/10/2024	16:00	03:51	23h53m15s	-2°10'18"	142°29'54"	1,000	29,10174
04/11/2024	15:33	03:23	23h52m45s	-2°13'21"	135°21'57"	1,000	29,18205
11/11/2024	15:05	02:55	23h52m20s	-2°15'52"	128°13'49"	1,000	29,27297
18/11/2024	14:37	02:27	23h52m00s	-2°17'49"	121°05'50"	1,000	29,37304
25/11/2024	14:09	01:59	23h51m45s	-2°19'09"	113°58'00"	1,000	29,48080
02/12/2024	13:42	01:31	23h51m37s	-2°19'49"	106°50'27"	1,000	29,59466
09/12/2024	13:14	01:04	23h51m34s	-2°19'49"	99°43'40"	1,000	29,71283
16/12/2024	12:47	00:37	23h51m38s	-2°19'08"	92°38'01"	1,000	29,83345
23/12/2024	12:19	00:09	23h51m48s	-2°17'47"	85°33'29"	1,000	29,95474
30/12/2024	11:52	23:38	23h52m04s	-2°15'46"	78°30'05"	1,000	30,07496

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 2024

Earth

04/01/2024	Perihelion	Distance from Sun:	0,98 AU
04/07/2024	Aphelion	Distance from Sun:	1,02 AU

Mercury

17/03/2024	Perihelion	Distance from Sun:	0,31 AU
13/06/2024	Perihelion	Distance from Sun:	0,31 AU
09/09/2024	Perihelion	Distance from Sun:	0,31 AU
06/12/2024	Perihelion	Distance from Sun:	0,31 AU
02/02/2024	Aphelion	Distance from Sun:	0,47 AU
30/04/2024	Aphelion	Distance from Sun:	0,47 AU
27/07/2024	Aphelion	Distance from Sun:	0,47 AU
23/10/2024	Aphelion	Distance from Sun:	0,47 AU

Venus

10/07/2024	Perihelion	Distance from Sun:	0,72 AU
19/03/2024	Aphelion	Distance from Sun:	0,73 AU
30/10/2024	Aphelion	Distance from Sun:	0,73 AU

Mars

08/05/2024	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 01/01/2024 to 31/12/2024

Mercury

Date	Hour	Event
28/02/2024	9	Superior Conjunction
12/04/2024	0	Inferior Conjunction
15/06/2024	0	Superior Conjunction
19/08/2024	3	Inferior Conjunction
01/10/2024	0	Superior Conjunction
06/12/2024	3	Inferior Conjunction

Venus

Date	Hour	Event
05/06/2024	0	Superior Conjunction (Occultation)

Mars

No Event

Jupiter

Date	Hour	Event
19/05/2024	0	Conjunction
08/12/2024	0	Opposition

Saturn

Date	Hour	Event
29/02/2024	0	Conjunction
08/09/2024	6	Opposition

Uranus

Date	Hour	Event
13/05/2024	9	Conjunction (Occultation)
17/11/2024	3	Opposition

Neptune

Date	Hour	Event
17/03/2024	12	Conjunction
21/09/2024	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

Grange Obs.                    Latitude: 45°08'32" N Longitude: 7°08'26" E  
Local Time = UT + 1,00 hours Elevation: 470 meters

Moon Apsides Report for 01/01/2024 to 31/12/2024

Date	Hour	Apsis	Distance (km)	Diameter
01/01/2024	16	Apogee	404914	0,4919°
13/01/2024	12	Perigee	362274	0,5497°
29/01/2024	9	Apogee	405766	0,4908°
10/02/2024	20	Perigee	358103	0,5561°
25/02/2024	16	Apogee	406311	0,4902°
10/03/2024	8	Perigee	356898	0,5580°
23/03/2024	16	Apogee	406300	0,4902°
07/04/2024	19	Perigee	358842	0,5550°
20/04/2024	3	Apogee	405640	0,4910°
05/05/2024	23	Perigee	363166	0,5484°
17/05/2024	20	Apogee	404655	0,4922°
02/06/2024	8	Perigee	368113	0,5410°
14/06/2024	15	Apogee	404077	0,4929°
27/06/2024	12	Perigee	369285	0,5393°
12/07/2024	9	Apogee	404364	0,4925°
24/07/2024	7	Perigee	364922	0,5458°
09/08/2024	3	Apogee	405302	0,4914°
21/08/2024	6	Perigee	360199	0,5529°
05/09/2024	16	Apogee	406208	0,4903°
18/09/2024	15	Perigee	357289	0,5574°
02/10/2024	21	Apogee	406523	0,4899°
17/10/2024	2	Perigee	357181	0,5576°
30/10/2024	0	Apogee	406162	0,4903°
14/11/2024	12	Perigee	360116	0,5530°
26/11/2024	13	Apogee	405292	0,4914°
12/12/2024	14	Perigee	365361	0,5451°
24/12/2024	8	Apogee	404479	0,4924°

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 01/01/2024 to 31/12/2024

Date	Time	Node	Illuminated Fraction
04/01/2024	19:51	Descending	0,44
17/01/2024	15:04	Ascending	0,44
31/01/2024	21:16	Descending	0,70
13/02/2024	18:00	Ascending	0,20
27/02/2024	23:52	Descending	0,90
12/03/2024	02:17	Ascending	0,04
26/03/2024	05:06	Descending	0,99
08/04/2024	13:19	Ascending	0,00
22/04/2024	11:44	Descending	0,98
05/05/2024	22:53	Ascending	0,07
19/05/2024	17:34	Descending	0,86
02/06/2024	04:07	Ascending	0,23
15/06/2024	21:16	Descending	0,66
29/06/2024	05:25	Ascending	0,47
12/07/2024	23:26	Descending	0,41
26/07/2024	06:32	Ascending	0,71
09/08/2024	02:05	Descending	0,19
22/08/2024	11:26	Ascending	0,90
05/09/2024	06:42	Descending	0,04
18/09/2024	20:50	Ascending	0,99
02/10/2024	12:51	Descending	0,00
16/10/2024	08:04	Ascending	0,98
29/10/2024	18:43	Descending	0,07
12/11/2024	16:58	Ascending	0,86
25/11/2024	22:30	Descending	0,24
09/12/2024	20:35	Ascending	0,64
23/12/2024	00:20	Descending	0,49

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 01/01/2024 to 31/12/2024

Date	Meteor Shower	ZHR	RA	DEC	Illum. Frac.	Longitude
05/01/2024	Quadrantids	80	15h28m	50°	0,42	284°
12/04/2024	Virginids	5	14h04m	-9°	0,14	22°
22/04/2024	Lyrids	12	18h08m	32°	0,97	32°
28/04/2024	alpha-Scorpiids	5	16h32m	-24°	0,84	38°
05/05/2024	eta-Aquarids	35	22h20m	-1°	0,13	45°
13/05/2024	alpha-Scorpiids	5	16h04m	-24°	0,27	52°
10/06/2024	Ophiuchids	5	17h56m	-23°	0,14	79°
20/06/2024	Ophiuchids	5	17h20m	-20°	0,95	89°
08/07/2024	Capricornids	5			0,05	106°
15/07/2024	Capricornids	5	20h44m	-15°	0,61	113°
21/07/2024	alpha-Cygnids	5	21h00m	48°	1,00	118°
26/07/2024	Capricornids	5	21h00m	-15°	0,73	123°
29/07/2024	delta-Aquarids	20	22h36m	-17°	0,40	126°
31/07/2024	Piscis Australids	5	22h40m	-30°	0,20	128°
02/08/2024	alpha-Capricornids	5	20h36m	-10°	0,06	130°
06/08/2024	iota-Aquarids	8	22h10m	-15°	0,02	134°
13/08/2024	Perseids	75	3h04m	58°	0,54	140°
21/08/2024	alpha-Cygnids	5	21h00m	48°	0,98	148°
08/09/2024	Piscids	10	0h36m	7°	0,21	166°
21/09/2024	Piscids	5	0h24m	0°	0,88	178°
13/10/2024	Piscids	??	1h44m	14°	0,74	200°
22/10/2024	Orionids	25	6h24m	15°	0,73	209°
03/11/2024	Taurids	8	3h44m	14°	0,02	221°
18/11/2024	Leonids	10	10h08m	22°	0,94	236°
09/12/2024	Puppids-Velids	15	9h00m	-48°	0,55	257°
14/12/2024	Geminids	75	7h28m	32°	0,97	262°
23/12/2024	Ursids	5	14h28m	78°	0,49	271°
26/12/2024	Puppids-Velids	15	9h20m	-65°	0,22	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 01/01/2024 to 31/12/2024

Date	Sun Rise	Set	Astronomical Begin	End	Nautical Begin	End	Civil Begin	End
01/01/2024	08:10	16:59	06:18	18:52	06:54	18:16	07:31	17:39
08/01/2024	08:10	17:06	06:19	18:58	06:54	18:22	07:31	17:45
15/01/2024	08:07	17:15	06:17	19:05	06:52	18:29	07:29	17:53
22/01/2024	08:02	17:24	06:14	19:12	06:49	18:37	07:25	18:02
29/01/2024	07:56	17:34	06:09	19:21	06:43	18:46	07:19	18:11
05/02/2024	07:47	17:44	06:02	19:29	06:36	18:55	07:11	18:20
12/02/2024	07:38	17:54	05:54	19:38	06:28	19:04	07:03	18:29
19/02/2024	07:27	18:04	05:44	19:47	06:18	19:13	06:52	18:39
26/02/2024	07:16	18:14	05:33	19:56	06:07	19:22	06:41	18:48
04/03/2024	07:04	18:23	05:21	20:06	05:55	19:31	06:29	18:57
11/03/2024	06:51	18:33	05:08	20:15	05:43	19:41	06:17	19:07
18/03/2024	06:38	18:42	04:54	20:25	05:29	19:50	06:04	19:16
25/03/2024	06:25	18:51	04:40	20:36	05:16	20:00	05:50	19:25
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08/04/2024	05:58	19:09	04:09	20:58	04:47	20:20	05:24	19:44
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30/12/2024	08:10	16:58	06:18	18:51	06:54	18:15	07:31	17:38