

Introduction to Reports Generated by Astronomy Lab 2

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

Abbreviations used in reports:

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

Calendar Report for 1/ 1/2012 to 12/31/2012

January 2012

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

April 2012

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

June 2012

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

July 2012

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

September 2012

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

Seasons Report for 2012

MEQ: 3/19/2012 22:11 Winter Length: 88.99 days
 JSO: 6/20/2012 16:05 Spring Length: 92.75 days
 SEQ: 9/22/2012 7:44 Summer Length: 93.65 days
 DSO: 12/21/2012 4:10 Autumn Length: 89.85 days

Dates of Easter Report for 2012

4/ 8/2012

Lunar Eclipse Report for 2012

Lunar eclipse on 6/ 4/2012
 Moon rise: 20:26
 Moon set: 5:07
 Magnitude: 0.37
 Partial phase begins: 3:01
 Time of maximum eclipse: 4:04
 Partial phase ends: 5:07

Solar Eclipse Report for 2012

Solar eclipse on 5/20/2012
 Sun rise: 5:05
 Sun set: 19:41
 Time of maximum eclipse: 16:53
 Eclipse is annular
 Eclipse is visible in the northern hemisphere

Solar eclipse on 11/13/2012
 Sun rise: 7:11
 Sun set: 17:10
 Time of maximum eclipse: 15:12
 Eclipse is total
 Eclipse is visible in the southern hemisphere

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

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

Planet View Info Report for 1/ 1/2012 to 12/31/2012

Mercury

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2012	6:21	15:45	17h16m05s	-22°08'00"	20°08'26"	0.804	1.18258
1/ 8/2012	6:42	15:55	17h58m18s	-23°27'03"	17°28'54"	0.879	1.28028
1/15/2012	7:01	16:11	18h43m38s	-23°53'31"	14°16'48"	0.927	1.35016
1/22/2012	7:18	16:34	19h30m50s	-23°17'49"	10°40'48"	0.960	1.39453
1/29/2012	7:31	17:03	20h19m04s	-21°34'21"	6°42'22"	0.983	1.41391
2/ 5/2012	7:40	17:37	21h07m48s	-18°39'46"	2°42'20"	0.997	1.40628
2/12/2012	7:45	18:14	21h56m36s	-14°33'09"	4°03'09"	0.992	1.36591
2/19/2012	7:46	18:54	22h44m41s	-9°19'54"	9°26'37"	0.942	1.28245
2/26/2012	7:42	19:31	23h29m30s	-3°24'54"	14°51'40"	0.798	1.14488

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1704 meters Year 2012

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3/ 4/2012	7:30	19:54	0h04m30s	2°04'30"	18°05'47"	0.529	0.96016
3/11/2012	7:06	19:48	0h19m53s	5°22'08"	16°08'14"	0.226	0.77358
3/18/2012	6:30	19:06	0h11m32s	5°07'47"	7°45'06"	0.034	0.64377
3/25/2012	5:53	18:06	23h51m00s	1°59'31"	6°36'21"	0.020	0.60000
4/ 1/2012	5:25	17:17	23h37m52s	-1°19'39"	17°18'23"	0.132	0.63085
4/ 8/2012	5:06	16:51	23h40m37s	-2°52'50"	24°09'48"	0.274	0.70580
4/15/2012	4:53	16:43	23h57m05s	-2°26'26"	27°08'14"	0.402	0.80120
4/22/2012	4:45	16:51	0h23m06s	-0°22'56"	27°14'33"	0.512	0.90501
4/29/2012	4:39	17:09	0h56m02s	2°54'59"	25°12'48"	0.614	1.01179
5/ 6/2012	4:36	17:36	1h34m57s	7°09'05"	21°24'56"	0.718	1.11770
5/13/2012	4:37	18:13	2h20m17s	12°01'41"	15°57'49"	0.830	1.21612
5/20/2012	4:43	18:59	3h13m15s	17°07'01"	8°53'41"	0.941	1.29248
5/27/2012	4:59	19:52	4h14m13s	21°39'01"	0°42'59"	1.000	1.32191
6/ 3/2012	5:25	20:41	5h19m31s	24°35'01"	8°06'10"	0.945	1.28453
6/10/2012	5:56	21:17	6h21m47s	25°20'51"	15°31'16"	0.809	1.19139
6/17/2012	6:27	21:35	7h15m33s	24°14'44"	21°02'45"	0.661	1.07223
6/24/2012	6:52	21:38	7h58m49s	21°56'40"	24°30'10"	0.528	0.94878
7/ 1/2012	7:08	21:29	8h30m52s	19°05'25"	25°44'34"	0.407	0.83179
7/ 8/2012	7:10	21:08	8h50m40s	16°16'37"	24°23'06"	0.286	0.72755
7/15/2012	6:55	20:36	8h56m29s	14°07'09"	19°50'37"	0.164	0.64352
7/22/2012	6:20	19:55	8h47m29s	13°14'37"	11°55'38"	0.057	0.59230
7/29/2012	5:30	19:12	8h28m28s	13°57'46"	4°57'50"	0.011	0.59223
8/ 5/2012	4:41	18:38	8h13m09s	15°45'14"	11°43'39"	0.074	0.65865
8/12/2012	4:12	18:23	8h15m52s	17°27'12"	17°36'18"	0.252	0.79110
8/19/2012	4:10	18:25	8h41m30s	17°54'11"	18°22'21"	0.513	0.96901
8/26/2012	4:34	18:36	9h25m33s	16°15'02"	14°35'47"	0.781	1.15067
9/ 2/2012	5:14	18:45	10h17m33s	12°27'26"	8°21'51"	0.946	1.28901
9/ 9/2012	5:55	18:49	11h08m36s	7°21'37"	2°12'42"	0.997	1.36678
9/16/2012	6:34	18:49	11h55m40s	1°50'08"	4°54'04"	0.988	1.39464
9/23/2012	7:08	18:46	12h39m04s	-3°36'20"	10°01'37"	0.958	1.38694
9/30/2012	7:39	18:41	13h19m52s	-8°42'15"	14°28'06"	0.919	1.35267
10/ 7/2012	8:07	18:36	13h58m56s	-13°18'33"	18°12'39"	0.871	1.29590
10/14/2012	8:31	18:32	14h36m39s	-17°17'41"	21°14'09"	0.812	1.21757
10/21/2012	8:52	18:27	15h12m25s	-20°30'40"	23°21'57"	0.729	1.11699
10/28/2012	9:04	18:21	15h43m47s	-22°44'28"	24°03'03"	0.605	0.99409
11/ 4/2012	8:58	18:09	16h04m32s	-23°36'48"	21°54'13"	0.413	0.85467
11/11/2012	8:20	17:42	16h02m30s	-22°24'18"	14°06'52"	0.152	0.72573
11/18/2012	7:05	16:58	15h32m06s	-18°33'35"	0°58'26"	0.001	0.67820
11/25/2012	6:03	16:21	15h06m51s	-15°08'38"	14°46'44"	0.204	0.76981
12/ 2/2012	5:46	16:02	15h13m47s	-15°20'43"	20°10'49"	0.518	0.93746
12/ 9/2012	5:57	15:55	15h42m13s	-17°39'51"	20°02'26"	0.730	1.09979
12/16/2012	6:19	15:56	16h20m29s	-20°20'55"	17°42'14"	0.849	1.22901
12/23/2012	6:44	16:03	17h03m32s	-22°35'05"	14°34'49"	0.916	1.32348
12/30/2012	7:08	16:16	17h49m22s	-24°00'57"	11°08'14"	0.956	1.38711

Venus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2012	9:56	19:53	21h07m24s	-18°25'45"	33°54'44"	0.828	1.29210
1/ 8/2012	9:51	20:10	21h41m23s	-15°41'50"	35°20'39"	0.810	1.25249
1/15/2012	9:45	20:26	22h14m12s	-12°37'51"	36°43'59"	0.792	1.21148
1/22/2012	9:37	20:42	22h45m59s	-9°18'16"	38°04'24"	0.772	1.16907
1/29/2012	9:28	20:58	23h16m52s	-5°47'32"	39°21'41"	0.752	1.12519
2/ 5/2012	9:18	21:13	23h47m01s	-2°10'03"	40°35'22"	0.729	1.07983
2/12/2012	9:08	21:27	0h16m37s	1°29'55"	41°44'37"	0.706	1.03308
2/19/2012	8:57	21:41	0h45m51s	5°08'25"	42°48'33"	0.680	0.98500
2/26/2012	8:46	21:55	1h14m52s	8°41'33"	43°46'20"	0.653	0.93560
3/ 4/2012	8:35	22:09	1h43m46s	12°05'26"	44°36'39"	0.624	0.88490
3/11/2012	8:24	22:22	2h12m35s	15°16'19"	45°17'34"	0.593	0.83306

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1704 meters Year 2012

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3/18/2012	8:14	22:34	2h41m16s	18°10'48"	45°46'43"	0.560	0.78028
3/25/2012	8:04	22:45	3h09m43s	20°45'50"	46°01'23"	0.524	0.72673
4/ 1/2012	7:55	22:55	3h37m38s	22°58'44"	45°57'44"	0.485	0.67259
4/ 8/2012	7:46	23:01	4h04m32s	24°47'26"	45°30'17"	0.442	0.61824
4/15/2012	7:38	23:05	4h29m44s	26°10'46"	44°31'50"	0.395	0.56422
4/22/2012	7:28	23:04	4h52m25s	27°08'31"	42°53'12"	0.344	0.51112
4/29/2012	7:17	22:56	5h11m25s	27°41'05"	40°21'44"	0.287	0.45973
5/ 6/2012	7:02	22:42	5h25m15s	27°49'01"	36°40'19"	0.224	0.41127
5/13/2012	6:42	22:18	5h32m22s	27°31'56"	31°28'34"	0.158	0.36753
5/20/2012	6:17	21:44	5h31m24s	26°47'27"	24°27'20"	0.092	0.33083
5/27/2012	5:46	21:00	5h21m58s	25°31'30"	15°28'39"	0.036	0.30400
6/ 3/2012	5:10	20:07	5h05m57s	23°43'45"	4°53'33"	0.004	0.29010
6/10/2012	4:34	19:13	4h48m00s	21°37'31"	6°16'25"	0.006	0.29121
6/17/2012	4:00	18:25	4h33m36s	19°39'53"	16°40'05"	0.042	0.30709
6/24/2012	3:31	17:46	4h26m10s	18°14'56"	25°22'05"	0.099	0.33545
7/ 1/2012	3:07	17:17	4h26m29s	17°31'14"	32°06'39"	0.165	0.37328
7/ 8/2012	2:48	16:57	4h33m48s	17°24'09"	37°04'03"	0.230	0.41780
7/15/2012	2:32	16:45	4h46m57s	17°43'08"	40°34'12"	0.290	0.46674
7/22/2012	2:21	16:38	5h04m42s	18°16'42"	42°57'20"	0.345	0.51847
7/29/2012	2:12	16:35	5h26m06s	18°54'46"	44°29'37"	0.395	0.57192
8/ 5/2012	2:07	16:34	5h50m27s	19°29'02"	45°22'48"	0.441	0.62636
8/12/2012	2:04	16:35	6h17m09s	19°52'40"	45°45'50"	0.482	0.68118
8/19/2012	2:05	16:37	6h45m43s	20°00'17"	45°45'40"	0.521	0.73589
8/26/2012	2:08	16:38	7h15m39s	19°47'57"	45°27'20"	0.556	0.79020
9/ 2/2012	2:14	16:39	7h46m34s	19°13'01"	44°54'16"	0.589	0.84394
9/ 9/2012	2:22	16:39	8h18m08s	18°13'59"	44°09'13"	0.620	0.89687
9/16/2012	2:32	16:38	8h50m03s	16°50'35"	43°14'33"	0.650	0.94877
9/23/2012	2:43	16:35	9h22m02s	15°03'42"	42°12'05"	0.678	0.99949
9/30/2012	2:56	16:31	9h53m56s	12°55'02"	41°02'57"	0.704	1.04898
10/ 7/2012	3:09	16:26	10h25m40s	10°26'55"	39°48'11"	0.729	1.09715
10/14/2012	3:23	16:20	10h57m13s	7°42'18"	38°28'50"	0.752	1.14384
10/21/2012	3:37	16:13	11h28m38s	4°44'36"	37°05'45"	0.775	1.18892
10/28/2012	3:51	16:06	11h59m59s	1°37'33"	35°39'25"	0.796	1.23240
11/ 4/2012	4:06	15:59	12h31m26s	-1°35'04"	34°10'17"	0.816	1.27424
11/11/2012	4:21	15:52	13h03m09s	-4°49'13"	32°38'58"	0.834	1.31435
11/18/2012	4:37	15:46	13h35m18s	-8°00'37"	31°05'58"	0.852	1.35261
11/25/2012	4:53	15:40	14h08m05s	-11°04'52"	29°31'31"	0.868	1.38904
12/ 2/2012	5:10	15:36	14h41m37s	-13°57'30"	27°55'49"	0.884	1.42368
12/ 9/2012	5:26	15:33	15h16m04s	-16°34'02"	26°19'15"	0.898	1.45647
12/16/2012	5:43	15:33	15h51m28s	-18°49'55"	24°42'07"	0.911	1.48734
12/23/2012	5:59	15:34	16h27m49s	-20°40'48"	23°04'31"	0.923	1.51631
12/30/2012	6:14	15:39	17h04m58s	-22°02'55"	21°26'27"	0.934	1.54346

Mars

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2012	22:45	11:37	11h28m19s	6°37'04"	109°49'18"	0.915	1.03960
1/ 8/2012	22:24	11:14	11h34m05s	6°12'55"	115°27'54"	0.922	0.97811
1/15/2012	22:01	10:50	11h38m07s	6°00'13"	121°34'15"	0.932	0.91909
1/22/2012	21:35	10:24	11h40m11s	6°00'24"	128°12'16"	0.943	0.86350
1/29/2012	21:06	9:57	11h40m01s	6°14'33"	135°25'08"	0.955	0.81258
2/ 5/2012	20:34	9:28	11h37m29s	6°42'52"	143°14'05"	0.968	0.76767
2/12/2012	19:58	8:58	11h32m33s	7°24'31"	151°38'09"	0.980	0.73009
2/19/2012	19:20	8:26	11h25m20s	8°17'17"	160°32'06"	0.990	0.70117
2/26/2012	18:40	7:53	11h16m15s	9°17'04"	169°36'07"	0.997	0.68221
3/ 4/2012	17:58	7:19	11h06m02s	10°18'03"	175°49'11"	1.000	0.67404
3/11/2012	17:17	6:45	10h55m36s	11°14'09"	169°14'45"	0.997	0.67682
3/18/2012	16:37	6:10	10h45m51s	12°00'17"	160°10'56"	0.990	0.69020
3/25/2012	16:00	5:37	10h37m36s	12°32'52"	151°18'46"	0.979	0.71335

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1704 meters Year 2012

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4/ 1/2012	15:26	5:04	10h31m29s	12°50'13"	142°58'25"	0.966	0.74499
4/ 8/2012	14:55	4:33	10h27m45s	12°52'30"	135°16'02"	0.952	0.78357
4/15/2012	14:27	4:04	10h26m25s	12°40'55"	128°11'56"	0.939	0.82770
4/22/2012	14:03	3:36	10h27m22s	12°16'49"	121°44'22"	0.927	0.87615
4/29/2012	13:40	3:09	10h30m25s	11°41'34"	115°50'41"	0.917	0.92774
5/ 6/2012	13:21	2:44	10h35m17s	10°56'34"	110°27'13"	0.908	0.98142
5/13/2012	13:03	2:20	10h41m44s	10°03'02"	105°29'50"	0.901	1.03642
5/20/2012	12:47	1:56	10h49m32s	9°01'53"	100°55'05"	0.895	1.09219
5/27/2012	12:33	1:34	10h58m30s	7°53'50"	96°40'23"	0.891	1.14813
6/ 3/2012	12:20	1:12	11h08m28s	6°39'39"	92°43'13"	0.889	1.20375
6/10/2012	12:08	0:50	11h19m16s	5°20'05"	89°01'00"	0.887	1.25872
6/17/2012	11:56	0:30	11h30m49s	3°55'42"	85°31'41"	0.886	1.31284
6/24/2012	11:46	0:09	11h43m02s	2°26'58"	82°13'57"	0.887	1.36586
7/ 1/2012	11:37	23:46	11h55m52s	0°54'31"	79°06'36"	0.888	1.41751
7/ 8/2012	11:28	23:27	12h09m13s	-0°41'01"	76°08'12"	0.889	1.46767
7/15/2012	11:20	23:08	12h23m06s	-2°19'05"	73°17'34"	0.891	1.51631
7/22/2012	11:13	22:49	12h37m29s	-3°59'08"	70°34'01"	0.894	1.56333
7/29/2012	11:06	22:30	12h52m21s	-5°40'31"	67°57'00"	0.897	1.60859
8/ 5/2012	11:00	22:12	13h07m43s	-7°22'32"	65°25'46"	0.900	1.65206
8/12/2012	10:54	21:55	13h23m33s	-9°04'28"	62°59'31"	0.903	1.69380
8/19/2012	10:49	21:38	13h39m55s	-10°45'39"	60°37'50"	0.907	1.73380
8/26/2012	10:44	21:21	13h56m49s	-12°25'16"	58°20'31"	0.911	1.77199
9/ 2/2012	10:40	21:05	14h14m15s	-14°02'26"	56°07'08"	0.915	1.80838
9/ 9/2012	10:36	20:50	14h32m14s	-15°36'16"	53°57'09"	0.919	1.84310
9/16/2012	10:33	20:35	14h50m48s	-17°05'51"	51°50'15"	0.923	1.87620
9/23/2012	10:30	20:22	15h09m58s	-18°30'13"	49°46'23"	0.927	1.90763
9/30/2012	10:27	20:09	15h29m44s	-19°48'15"	47°45'21"	0.931	1.93746
10/ 7/2012	10:25	19:57	15h50m05s	-20°58'57"	45°46'45"	0.935	1.96584
10/14/2012	10:22	19:46	16h11m02s	-22°01'15"	43°50'20"	0.939	1.99285
10/21/2012	10:20	19:36	16h32m32s	-22°54'08"	41°56'06"	0.944	2.01850
10/28/2012	10:17	19:28	16h54m32s	-23°36'35"	40°04'01"	0.947	2.04284
11/ 4/2012	10:15	19:21	17h16m59s	-24°07'42"	38°13'48"	0.951	2.06603
11/11/2012	10:11	19:15	17h39m50s	-24°26'43"	36°25'12"	0.955	2.08821
11/18/2012	10:07	19:10	18h02m59s	-24°33'02"	34°38'14"	0.959	2.10938
11/25/2012	10:02	19:07	18h26m20s	-24°26'11"	32°52'56"	0.962	2.12959
12/ 2/2012	9:56	19:04	18h49m46s	-24°05'58"	31°09'10"	0.966	2.14900
12/ 9/2012	9:50	19:02	19h13m14s	-23°32'23"	29°26'39"	0.969	2.16774
12/16/2012	9:42	19:02	19h36m36s	-22°45'40"	27°45'23"	0.972	2.18582
12/23/2012	9:33	19:02	19h59m48s	-21°46'16"	26°05'25"	0.975	2.20326
12/30/2012	9:24	19:02	20h22m46s	-20°34'52"	24°26'41"	0.978	2.22019

Jupiter

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2012	12:58	2:19	1h55m02s	10°28'14"	110°27'35"	0.991	4.54463
1/ 8/2012	12:31	1:52	1h55m52s	10°35'06"	103°33'37"	0.991	4.65233
1/15/2012	12:04	1:27	1h57m19s	10°45'18"	96°49'33"	0.990	4.76309
1/22/2012	11:38	1:02	1h59m22s	10°58'37"	90°14'54"	0.990	4.87545
1/29/2012	11:12	0:38	2h01m59s	11°14'49"	83°49'30"	0.990	4.98791
2/ 5/2012	10:47	0:15	2h05m08s	11°33'36"	77°33'08"	0.991	5.09903
2/12/2012	10:22	23:49	2h08m45s	11°54'37"	71°25'10"	0.991	5.20760
2/19/2012	9:57	23:27	2h12m50s	12°17'36"	65°24'53"	0.992	5.31254
2/26/2012	9:32	23:06	2h17m18s	12°42'14"	59°31'50"	0.993	5.41279
3/ 4/2012	9:08	22:45	2h22m09s	13°08'13"	53°45'43"	0.994	5.50734
3/11/2012	8:44	22:24	2h27m20s	13°35'15"	48°05'59"	0.994	5.59542
3/18/2012	8:20	22:04	2h32m48s	14°03'03"	42°31'53"	0.995	5.67640
3/25/2012	7:57	21:44	2h38m32s	14°31'22"	37°02'53"	0.996	5.74962
4/ 1/2012	7:33	21:24	2h44m30s	14°59'58"	31°38'43"	0.997	5.81448
4/ 8/2012	7:10	21:05	2h50m40s	15°28'35"	26°18'56"	0.998	5.87060

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1704 meters Year 2012

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4/15/2012	6:47	20:45	2h56m59s	15°57'01"	21°02'51"	0.999	5.91770
4/22/2012	6:24	20:26	3h03m27s	16°25'06"	15°49'56"	0.999	5.95546
4/29/2012	6:01	20:07	3h10m02s	16°52'38"	10°40'03"	1.000	5.98362
5/ 6/2012	5:39	19:48	3h16m42s	17°19'26"	5°33'35"	1.000	6.00209
5/13/2012	5:16	19:28	3h23m25s	17°45'23"	0°53'25"	1.000	6.01088
5/20/2012	4:54	19:09	3h30m09s	18°10'20"	4°45'45"	1.000	6.00995
5/27/2012	4:31	18:50	3h36m54s	18°34'12"	9°48'28"	1.000	5.99928
6/ 3/2012	4:09	18:31	3h43m37s	18°56'52"	14°52'21"	0.999	5.97904
6/10/2012	3:47	18:11	3h50m17s	19°18'15"	19°56'57"	0.999	5.94949
6/17/2012	3:24	17:52	3h56m53s	19°38'17"	25°02'50"	0.998	5.91079
6/24/2012	3:02	17:32	4h03m21s	19°56'56"	30°10'27"	0.997	5.86318
7/ 1/2012	2:40	17:12	4h09m40s	20°14'09"	35°20'11"	0.997	5.80705
7/ 8/2012	2:17	16:51	4h15m49s	20°29'55"	40°32'37"	0.996	5.74290
7/15/2012	1:55	16:31	4h21m44s	20°44'14"	45°48'38"	0.995	5.67113
7/22/2012	1:32	16:10	4h27m25s	20°57'07"	51°08'56"	0.994	5.59222
7/29/2012	1:09	15:48	4h32m48s	21°08'33"	56°33'58"	0.993	5.50684
8/ 5/2012	0:46	15:26	4h37m51s	21°18'36"	62°04'22"	0.992	5.41576
8/12/2012	0:22	15:04	4h42m31s	21°27'18"	67°41'05"	0.991	5.31968
8/19/2012	23:55	14:41	4h46m47s	21°34'43"	73°25'00"	0.991	5.21939
8/26/2012	23:31	14:18	4h50m34s	21°40'52"	79°16'37"	0.990	5.11592
9/ 2/2012	23:06	13:54	4h53m50s	21°45'51"	85°16'34"	0.990	5.01039
9/ 9/2012	22:41	13:29	4h56m33s	21°49'43"	91°25'44"	0.990	4.90387
9/16/2012	22:15	13:04	4h58m40s	21°52'31"	97°45'01"	0.990	4.79756
9/23/2012	21:49	12:38	5h00m08s	21°54'17"	104°14'53"	0.991	4.69291
9/30/2012	21:22	12:11	5h00m56s	21°55'04"	110°55'34"	0.991	4.59140
10/ 7/2012	20:54	11:44	5h01m02s	21°54'55"	117°47'34"	0.992	4.49450
10/14/2012	20:26	11:15	5h00m26s	21°53'49"	124°51'19"	0.993	4.40376
10/21/2012	19:57	10:46	4h59m07s	21°51'46"	132°06'35"	0.995	4.32087
10/28/2012	19:28	10:16	4h57m09s	21°48'47"	139°32'38"	0.996	4.24747
11/ 4/2012	18:58	9:46	4h54m34s	21°44'53"	147°08'44"	0.997	4.18502
11/11/2012	18:28	9:15	4h51m26s	21°40'06"	154°54'02"	0.998	4.13490
11/18/2012	17:57	8:43	4h47m52s	21°34'30"	162°46'52"	0.999	4.09839
11/25/2012	17:26	8:12	4h43m59s	21°28'14"	170°44'34"	1.000	4.07647
12/ 2/2012	16:55	7:40	4h39m57s	21°21'29"	178°34'11"	1.000	4.06969
12/ 9/2012	16:24	7:08	4h35m54s	21°14'31"	173°05'26"	1.000	4.07830
12/16/2012	15:53	6:36	4h31m59s	21°07'37"	165°04'36"	0.999	4.10229
12/23/2012	15:22	6:04	4h28m22s	21°01'09"	157°06'19"	0.999	4.14119
12/30/2012	14:52	5:33	4h25m09s	20°55'26"	149°13'32"	0.998	4.19408

Saturn

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2012	2:00	13:05	13h49m01s	-8°38'21"	71°34'58"	0.998	9.97225
1/ 8/2012	1:35	12:38	13h50m35s	-8°45'20"	78°18'25"	0.998	9.85999
1/15/2012	1:09	12:12	13h51m52s	-8°50'35"	85°06'16"	0.997	9.74497
1/22/2012	0:42	11:45	13h52m51s	-8°54'04"	91°58'49"	0.997	9.62871
1/29/2012	0:15	11:18	13h53m30s	-8°55'44"	98°55'56"	0.997	9.51292
2/ 5/2012	23:44	10:51	13h53m50s	-8°55'35"	105°57'14"	0.998	9.39941
2/12/2012	23:17	10:23	13h53m51s	-8°53'38"	113°02'38"	0.998	9.28987
2/19/2012	22:48	9:56	13h53m32s	-8°49'57"	120°12'08"	0.998	9.18594
2/26/2012	22:20	9:28	13h52m53s	-8°44'36"	127°25'23"	0.998	9.08937
3/ 4/2012	21:51	9:00	13h51m57s	-8°37'43"	134°41'37"	0.999	9.00183
3/11/2012	21:22	8:32	13h50m45s	-8°29'27"	142°00'14"	0.999	8.92473
3/18/2012	20:52	8:03	13h49m17s	-8°20'00"	149°20'45"	0.999	8.85934
3/25/2012	20:22	7:34	13h47m38s	-8°09'35"	156°42'05"	1.000	8.80686
4/ 1/2012	19:52	7:06	13h45m48s	-7°58'29"	164°01'59"	1.000	8.76824
4/ 8/2012	19:22	6:37	13h43m52s	-7°46'57"	171°13'56"	1.000	8.74409
4/15/2012	18:52	6:08	13h41m52s	-7°35'18"	177°04'45"	1.000	8.73473
4/22/2012	18:22	5:39	13h39m51s	-7°23'50"	172°58'42"	1.000	8.74036

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1704 meters Year 2012

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4/29/2012	17:52	5:10	13h37m52s	-7°12'50"	165°56'12"	1.000	8.76087
5/ 6/2012	17:22	4:42	13h35m59s	-7°02'37"	158°44'56"	1.000	8.79576
5/13/2012	16:52	4:13	13h34m14s	-6°53'25"	151°34'23"	0.999	8.84431
5/20/2012	16:22	3:44	13h32m40s	-6°45'27"	144°26'40"	0.999	8.90573
5/27/2012	15:53	3:16	13h31m19s	-6°38'57"	137°22'59"	0.999	8.97895
6/ 3/2012	15:24	2:47	13h30m12s	-6°34'02"	130°24'09"	0.998	9.06266
6/10/2012	14:56	2:19	13h29m22s	-6°30'51"	123°30'19"	0.998	9.15547
6/17/2012	14:28	1:51	13h28m49s	-6°29'25"	116°41'24"	0.998	9.25600
6/24/2012	14:00	1:24	13h28m33s	-6°29'50"	109°57'34"	0.998	9.36277
7/ 1/2012	13:33	0:56	13h28m36s	-6°32'05"	103°18'59"	0.997	9.47415
7/ 8/2012	13:06	0:29	13h28m56s	-6°36'07"	96°45'24"	0.997	9.58858
7/15/2012	12:39	0:01	13h29m35s	-6°41'52"	90°16'20"	0.997	9.70461
7/22/2012	12:13	23:30	13h30m31s	-6°49'18"	83°51'29"	0.997	9.82076
7/29/2012	11:48	23:04	13h31m44s	-6°58'19"	77°30'46"	0.997	9.93548
8/ 5/2012	11:22	22:37	13h33m13s	-7°08'47"	71°13'48"	0.998	10.04740
8/12/2012	10:57	22:11	13h34m57s	-7°20'35"	64°59'56"	0.998	10.15528
8/19/2012	10:32	21:44	13h36m55s	-7°33'36"	58°48'40"	0.998	10.25788
8/26/2012	10:08	21:18	13h39m07s	-7°47'41"	52°39'50"	0.998	10.35395
9/ 2/2012	9:44	20:52	13h41m30s	-8°02'43"	46°33'04"	0.999	10.44243
9/ 9/2012	9:19	20:26	13h44m04s	-8°18'32"	40°27'45"	0.999	10.52243
9/16/2012	8:56	20:01	13h46m48s	-8°35'01"	34°23'22"	0.999	10.59306
9/23/2012	8:32	19:35	13h49m40s	-8°52'00"	28°19'48"	0.999	10.65346
9/30/2012	8:08	19:09	13h52m39s	-9°09'21"	22°17'02"	1.000	10.70297
10/ 7/2012	7:45	18:44	13h55m43s	-9°26'55"	16°15'04"	1.000	10.74113
10/14/2012	7:22	18:18	13h58m52s	-9°44'34"	10°15'14"	1.000	10.76745
10/21/2012	6:58	17:53	14h02m04s	-10°02'09"	4°29'40"	1.000	10.78152
10/28/2012	6:35	17:28	14h05m18s	-10°19'31"	3°09'14"	1.000	10.78318
11/ 4/2012	6:12	17:02	14h08m31s	-10°36'33"	8°40'28"	1.000	10.77244
11/11/2012	5:48	16:37	14h11m44s	-10°53'08"	14°44'35"	1.000	10.74932
11/18/2012	5:25	16:12	14h14m53s	-11°09'06"	20°55'26"	1.000	10.71393
11/25/2012	5:01	15:46	14h17m58s	-11°24'21"	27°10'05"	0.999	10.66665
12/ 2/2012	4:38	15:21	14h20m57s	-11°38'46"	33°28'03"	0.999	10.60805
12/ 9/2012	4:14	14:56	14h23m48s	-11°52'13"	39°49'29"	0.999	10.53872
12/16/2012	3:50	14:30	14h26m30s	-12°04'37"	46°14'32"	0.999	10.45933
12/23/2012	3:25	14:04	14h29m01s	-12°15'50"	52°43'04"	0.998	10.37086
12/30/2012	3:01	13:38	14h31m20s	-12°25'49"	59°15'09"	0.998	10.27443

Uranus

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2012	11:45	23:47	0h04m15s	-0°19'41"	80°52'53"	0.999	20.21014
1/ 8/2012	11:18	23:20	0h04m47s	-0°15'52"	73°53'54"	0.999	20.32796
1/15/2012	10:51	22:54	0h05m28s	-0°11'09"	66°57'24"	0.999	20.44178
1/22/2012	10:24	22:27	0h06m17s	-0°05'34"	60°03'13"	1.000	20.55003
1/29/2012	9:57	22:01	0h07m14s	0°00'48"	53°11'34"	1.000	20.65113
2/ 5/2012	9:30	21:35	0h08m17s	0°07'53"	46°22'40"	1.000	20.74367
2/12/2012	9:03	21:09	0h09m26s	0°15'35"	39°36'25"	1.000	20.82649
2/19/2012	8:36	20:43	0h10m41s	0°23'50"	32°52'34"	1.000	20.89856
2/26/2012	8:10	20:18	0h12m00s	0°32'33"	26°11'04"	1.000	20.95891
3/ 4/2012	7:43	19:52	0h13m22s	0°41'36"	19°32'08"	1.000	21.00676
3/11/2012	7:16	19:26	0h14m47s	0°50'55"	12°55'43"	1.000	21.04165
3/18/2012	6:50	19:01	0h16m14s	1°00'23"	6°21'59"	1.000	21.06324
3/25/2012	6:23	18:35	0h17m42s	1°09'56"	0°43'29"	1.000	21.07125
4/ 1/2012	5:56	18:10	0h19m10s	1°19'26"	6°46'57"	1.000	21.06564
4/ 8/2012	5:30	17:44	0h20m37s	1°28'49"	13°15'45"	1.000	21.04662
4/15/2012	5:03	17:19	0h22m03s	1°37'59"	19°44'08"	1.000	21.01454
4/22/2012	4:37	16:53	0h23m26s	1°46'50"	26°11'58"	1.000	20.96978
4/29/2012	4:10	16:27	0h24m45s	1°55'18"	32°39'14"	1.000	20.91293
5/ 6/2012	3:43	16:01	0h26m01s	2°03'16"	39°06'01"	1.000	20.84484

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1704 meters Year 2012

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5/13/2012	3:16	15:35	0h27m11s	2°10'42"	45°32'47"	1.000	20.76640
5/20/2012	2:50	15:09	0h28m16s	2°17'31"	52°00'02"	1.000	20.67854
5/27/2012	2:23	14:43	0h29m15s	2°23'38"	58°27'56"	1.000	20.58238
6/ 3/2012	1:56	14:17	0h30m07s	2°28'59"	64°56'33"	0.999	20.47924
6/10/2012	1:29	13:50	0h30m52s	2°33'33"	71°26'18"	0.999	20.37044
6/17/2012	1:02	13:23	0h31m28s	2°37'16"	77°57'44"	0.999	20.25729
6/24/2012	0:34	12:57	0h31m57s	2°40'05"	84°31'01"	0.999	20.14126
7/ 1/2012	0:07	12:29	0h32m17s	2°41'59"	91°06'10"	0.999	20.02399
7/ 8/2012	23:36	12:02	0h32m29s	2°42'58"	97°43'27"	0.999	19.90701
7/15/2012	23:08	11:35	0h32m31s	2°43'00"	104°23'20"	0.999	19.79184
7/22/2012	22:41	11:07	0h32m25s	2°42'07"	111°06'00"	0.999	19.68008
7/29/2012	22:13	10:39	0h32m11s	2°40'19"	117°51'19"	0.999	19.57342
8/ 5/2012	21:45	10:11	0h31m48s	2°37'40"	124°39'19"	1.000	19.47335
8/12/2012	21:17	9:43	0h31m17s	2°34'11"	131°30'18"	1.000	19.38129
8/19/2012	20:49	9:14	0h30m39s	2°29'57"	138°24'23"	1.000	19.29867
8/26/2012	20:21	8:46	0h29m55s	2°25'01"	145°21'13"	1.000	19.22685
9/ 2/2012	19:53	8:17	0h29m05s	2°19'32"	152°20'36"	1.000	19.16696
9/ 9/2012	19:25	7:48	0h28m10s	2°13'33"	159°22'32"	1.000	19.11991
9/16/2012	18:57	7:19	0h27m12s	2°07'13"	166°26'53"	1.000	19.08655
9/23/2012	18:29	6:51	0h26m11s	2°00'39"	173°32'28"	1.000	19.06758
9/30/2012	18:01	6:22	0h25m09s	1°54'00"	178°57'11"	1.000	19.06334
10/ 7/2012	17:33	5:53	0h24m07s	1°47'23"	172°03'51"	1.000	19.07388
10/14/2012	17:04	5:24	0h23m06s	1°40'57"	164°53'08"	1.000	19.09920
10/21/2012	16:36	4:55	0h22m08s	1°34'50"	157°40'47"	1.000	19.13901
10/28/2012	16:08	4:26	0h21m14s	1°29'10"	150°27'53"	1.000	19.19268
11/ 4/2012	15:40	3:58	0h20m25s	1°24'04"	143°14'49"	1.000	19.25933
11/11/2012	15:12	3:29	0h19m42s	1°19'39"	136°01'43"	1.000	19.33800
11/18/2012	14:44	3:01	0h19m06s	1°16'01"	128°49'00"	1.000	19.42751
11/25/2012	14:16	2:33	0h18m38s	1°13'14"	121°37'18"	1.000	19.52638
12/ 2/2012	13:49	2:05	0h18m18s	1°11'23"	114°26'54"	0.999	19.63302
12/ 9/2012	13:21	1:37	0h18m07s	1°10'30"	107°17'51"	0.999	19.74584
12/16/2012	12:54	1:10	0h18m05s	1°10'36"	100°10'22"	0.999	19.86312
12/23/2012	12:26	0:42	0h18m12s	1°11'43"	93°04'59"	0.999	19.98299
12/30/2012	11:59	0:15	0h18m29s	1°13'51"	86°01'57"	0.999	20.10359

Neptune

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2012	10:28	21:06	22h04m55s	-12°22'08"	48°56'23"	1.000	30.63931
1/ 8/2012	10:01	20:40	22h05m41s	-12°17'54"	42°00'30"	1.000	30.72577
1/15/2012	9:34	20:13	22h06m31s	-12°13'19"	35°05'51"	1.000	30.80154
1/22/2012	9:07	19:47	22h07m25s	-12°08'24"	28°12'16"	1.000	30.86558
1/29/2012	8:40	19:21	22h08m22s	-12°03'14"	21°19'56"	1.000	30.91693
2/ 5/2012	8:13	18:54	22h09m21s	-11°57'51"	14°29'10"	1.000	30.95490
2/12/2012	7:46	18:28	22h10m21s	-11°52'22"	7°40'10"	1.000	30.97910
2/19/2012	7:19	18:02	22h11m22s	-11°46'47"	1°00'22"	1.000	30.98925
2/26/2012	6:53	17:36	22h12m23s	-11°41'12"	5°58'12"	1.000	30.98518
3/ 4/2012	6:26	17:10	22h13m23s	-11°35'41"	12°43'17"	1.000	30.96701
3/11/2012	5:59	16:43	22h14m22s	-11°30'17"	19°27'39"	1.000	30.93515
3/18/2012	5:32	16:17	22h15m20s	-11°25'03"	26°11'11"	1.000	30.89008
3/25/2012	5:05	15:51	22h16m14s	-11°20'04"	32°53'58"	1.000	30.83237
4/ 1/2012	4:38	15:24	22h17m06s	-11°15'23"	39°35'51"	1.000	30.76289
4/ 8/2012	4:11	14:58	22h17m54s	-11°11'03"	46°16'53"	1.000	30.68271
4/15/2012	3:44	14:31	22h18m37s	-11°07'06"	52°57'25"	1.000	30.59293
4/22/2012	3:17	14:05	22h19m16s	-11°03'36"	59°37'46"	1.000	30.49471
4/29/2012	2:50	13:38	22h19m50s	-11°00'35"	66°17'53"	1.000	30.38943
5/ 6/2012	2:23	13:11	22h20m19s	-10°58'05"	72°57'45"	1.000	30.27862
5/13/2012	1:55	12:44	22h20m42s	-10°56'08"	79°37'46"	1.000	30.16376
5/20/2012	1:28	12:17	22h20m59s	-10°54'44"	86°18'16"	1.000	30.04634

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
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5/27/2012	1:01	11:49	22h21m10s	-10°53'55"	92°59'17"	1.000	29.92801
6/ 3/2012	0:33	11:22	22h21m15s	-10°53'40"	99°40'45"	1.000	29.81047
6/10/2012	0:06	10:54	22h21m14s	-10°54'00"	106°22'56"	1.000	29.69529
6/17/2012	23:34	10:27	22h21m06s	-10°54'54"	113°06'13"	1.000	29.58400
6/24/2012	23:07	9:59	22h20m54s	-10°56'21"	119°50'40"	1.000	29.47821
7/ 1/2012	22:39	9:31	22h20m35s	-10°58'19"	126°36'07"	1.000	29.37949
7/ 8/2012	22:11	9:03	22h20m12s	-11°00'45"	133°22'41"	1.000	29.28920
7/15/2012	21:43	8:35	22h19m43s	-11°03'37"	140°10'42"	1.000	29.20857
7/22/2012	21:15	8:06	22h19m11s	-11°06'53"	147°00'14"	1.000	29.13885
7/29/2012	20:47	7:38	22h18m34s	-11°10'28"	153°50'59"	1.000	29.08116
8/ 5/2012	20:19	7:10	22h17m55s	-11°14'18"	160°42'54"	1.000	29.03631
8/12/2012	19:52	6:41	22h17m14s	-11°18'20"	167°36'06"	1.000	29.00494
8/19/2012	19:24	6:13	22h16m31s	-11°22'28"	174°29'59"	1.000	28.98765
8/26/2012	18:56	5:44	22h15m47s	-11°26'39"	178°24'07"	1.000	28.98480
9/ 2/2012	18:28	5:16	22h15m04s	-11°30'48"	171°33'02"	1.000	28.99642
9/ 9/2012	18:00	4:47	22h14m21s	-11°34'49"	164°35'17"	1.000	29.02235
9/16/2012	17:32	4:19	22h13m40s	-11°38'40"	157°35'57"	1.000	29.06234
9/23/2012	17:04	3:50	22h13m02s	-11°42'14"	150°35'39"	1.000	29.11589
9/30/2012	16:36	3:22	22h12m27s	-11°45'29"	143°34'47"	1.000	29.18216
10/ 7/2012	16:08	2:54	22h11m56s	-11°48'20"	136°33'19"	1.000	29.26015
10/14/2012	15:40	2:26	22h11m29s	-11°50'45"	129°31'11"	1.000	29.34883
10/21/2012	15:12	1:58	22h11m08s	-11°52'40"	122°28'41"	1.000	29.44690
10/28/2012	14:45	1:30	22h10m52s	-11°54'04"	115°26'13"	1.000	29.55282
11/ 4/2012	14:17	1:02	22h10m42s	-11°54'53"	108°23'49"	1.000	29.66500
11/11/2012	13:49	0:35	22h10m39s	-11°55'09"	101°21'23"	1.000	29.78187
11/18/2012	13:22	0:07	22h10m42s	-11°54'48"	94°19'07"	1.000	29.90167
11/25/2012	12:55	23:36	22h10m51s	-11°53'51"	87°17'26"	1.000	30.02253
12/ 2/2012	12:27	23:09	22h11m07s	-11°52'19"	80°16'27"	1.000	30.14267
12/ 9/2012	12:00	22:42	22h11m29s	-11°50'13"	73°16'02"	1.000	30.26038
12/16/2012	11:33	22:15	22h11m57s	-11°47'32"	66°16'16"	1.000	30.37393
12/23/2012	11:06	21:48	22h12m30s	-11°44'21"	59°17'33"	1.000	30.48156
12/30/2012	10:38	21:22	22h13m09s	-11°40'40"	52°20'02"	1.000	30.58174

Pluto

Date	Rise	Set	RA	Dec	Elongation	Ill Fr	DIST(AU)
1/ 1/2012	7:21	17:06	18h30m59s	-19°19'22"	4°43'08"	1.000	33.13454
1/ 8/2012	6:54	16:40	18h32m02s	-19°19'09"	10°16'57"	1.000	33.12555
1/15/2012	6:28	16:13	18h33m04s	-19°18'48"	16°50'57"	1.000	33.10250
1/22/2012	6:01	15:47	18h34m05s	-19°18'22"	23°36'00"	1.000	33.06569
1/29/2012	5:35	15:20	18h35m03s	-19°17'51"	30°24'47"	1.000	33.01564
2/ 5/2012	5:08	14:54	18h35m58s	-19°17'16"	37°15'00"	1.000	32.95320
2/12/2012	4:41	14:27	18h36m49s	-19°16'38"	44°05'57"	1.000	32.87939
2/19/2012	4:14	14:00	18h37m35s	-19°15'59"	50°57'30"	1.000	32.79524
2/26/2012	3:48	13:34	18h38m17s	-19°15'20"	57°49'22"	1.000	32.70198
3/ 4/2012	3:21	13:07	18h38m54s	-19°14'42"	64°41'12"	1.000	32.60109
3/11/2012	2:54	12:40	18h39m25s	-19°14'06"	71°32'53"	1.000	32.49412
3/18/2012	2:26	12:13	18h39m49s	-19°13'33"	78°24'38"	1.000	32.38260
3/25/2012	1:59	11:46	18h40m08s	-19°13'06"	85°16'27"	1.000	32.26813
4/ 1/2012	1:32	11:18	18h40m20s	-19°12'43"	92°08'03"	1.000	32.15251
4/ 8/2012	1:04	10:51	18h40m26s	-19°12'28"	98°59'21"	1.000	32.03748
4/15/2012	0:37	10:23	18h40m25s	-19°12'19"	105°50'32"	1.000	31.92467
4/22/2012	0:09	9:56	18h40m18s	-19°12'19"	112°41'44"	1.000	31.81573
4/29/2012	23:37	9:28	18h40m04s	-19°12'27"	119°32'42"	1.000	31.71234
5/ 6/2012	23:10	9:00	18h39m45s	-19°12'43"	126°23'11"	1.000	31.61608
5/13/2012	22:42	8:32	18h39m21s	-19°13'08"	133°13'20"	1.000	31.52829
5/20/2012	22:14	8:04	18h38m51s	-19°13'43"	140°03'11"	1.000	31.45025
5/27/2012	21:46	7:36	18h38m18s	-19°14'26"	146°52'19"	1.000	31.38323
6/ 3/2012	21:18	7:08	18h37m40s	-19°15'17"	153°39'59"	1.000	31.32826

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1704 meters Year 2012

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6/10/2012	20:49	6:39	18h37m00s	-19°16'16"	160°25'02"	1.000	31.28606
6/17/2012	20:21	6:11	18h36m17s	-19°17'23"	167°03'51"	1.000	31.25731
6/24/2012	19:53	5:43	18h35m33s	-19°18'36"	173°17'09"	1.000	31.24255
7/ 1/2012	19:25	5:14	18h34m49s	-19°19'56"	175°54'47"	1.000	31.24203
7/ 8/2012	18:57	4:46	18h34m04s	-19°21'21"	170°56'39"	1.000	31.25572
7/15/2012	18:29	4:18	18h33m21s	-19°22'51"	164°28'39"	1.000	31.28350
7/22/2012	18:01	3:49	18h32m39s	-19°24'25"	157°47'04"	1.000	31.32510
7/29/2012	17:32	3:21	18h32m00s	-19°26'01"	151°01'35"	1.000	31.37995
8/ 5/2012	17:04	2:53	18h31m24s	-19°27'40"	144°14'36"	1.000	31.44724
8/12/2012	16:37	2:25	18h30m52s	-19°29'19"	137°26'42"	1.000	31.52610
8/19/2012	16:09	1:57	18h30m24s	-19°30'59"	130°38'12"	1.000	31.61552
8/26/2012	15:41	1:29	18h30m02s	-19°32'39"	123°49'32"	1.000	31.71427
9/ 2/2012	15:13	1:01	18h29m45s	-19°34'17"	117°00'53"	1.000	31.82090
9/ 9/2012	14:46	0:33	18h29m34s	-19°35'52"	110°12'05"	1.000	31.93400
9/16/2012	14:18	0:05	18h29m29s	-19°37'25"	103°22'59"	1.000	32.05209
9/23/2012	13:51	23:34	18h29m31s	-19°38'54"	96°33'46"	1.000	32.17350
9/30/2012	13:23	23:06	18h29m39s	-19°40'18"	89°44'38"	1.000	32.29649
10/ 7/2012	12:56	22:39	18h29m53s	-19°41'36"	82°55'21"	1.000	32.41942
10/14/2012	12:29	22:12	18h30m14s	-19°42'49"	76°05'44"	1.000	32.54066
10/21/2012	12:02	21:45	18h30m41s	-19°43'54"	69°15'52"	1.000	32.65849
10/28/2012	11:35	21:17	18h31m14s	-19°44'53"	62°26'01"	1.000	32.77121
11/ 4/2012	11:08	20:51	18h31m52s	-19°45'43"	55°36'05"	1.000	32.87732
11/11/2012	10:42	20:24	18h32m35s	-19°46'25"	48°45'51"	1.000	32.97542
11/18/2012	10:15	19:57	18h33m24s	-19°46'59"	41°55'29"	1.000	33.06409
11/25/2012	9:48	19:30	18h34m16s	-19°47'24"	35°05'23"	1.000	33.14205
12/ 2/2012	9:22	19:04	18h35m12s	-19°47'40"	28°15'53"	1.000	33.20830
12/ 9/2012	8:55	18:37	18h36m10s	-19°47'48"	21°27'28"	1.000	33.26199
12/16/2012	8:29	18:11	18h37m11s	-19°47'47"	14°42'10"	1.000	33.30232
12/23/2012	8:02	17:44	18h38m14s	-19°47'38"	8°09'10"	1.000	33.32870
12/30/2012	7:36	17:18	18h39m17s	-19°47'22"	3°22'36"	1.000	33.34089

Planet Apsides Report for 2012

Earth

1/ 3/2012	Perihelion	Distance from Sun:	0.98 AU
7/ 4/2012	Aphelion	Distance from Sun:	1.02 AU

Mercury

3/ 1/2012	Perihelion	Distance from Sun:	0.31 AU
5/28/2012	Perihelion	Distance from Sun:	0.31 AU
8/24/2012	Perihelion	Distance from Sun:	0.31 AU
11/20/2012	Perihelion	Distance from Sun:	0.31 AU
1/17/2012	Aphelion	Distance from Sun:	0.47 AU
4/14/2012	Aphelion	Distance from Sun:	0.47 AU
7/11/2012	Aphelion	Distance from Sun:	0.47 AU
10/ 7/2012	Aphelion	Distance from Sun:	0.47 AU

Venus

3/20/2012	Perihelion	Distance from Sun:	0.72 AU
10/31/2012	Perihelion	Distance from Sun:	0.72 AU
7/11/2012	Aphelion	Distance from Sun:	0.73 AU

Mars

2/15/2012	Aphelion	Distance from Sun:	1.67 AU
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Jupiter

No Apsis

Saturn

No Apsis

Planet Conjunction/Opposition Report for 1/ 1/2012 to 12/31/2012

Mercury

Date	Hour	Event
2/ 7/2012	2	Superior Conjunction
3/21/2012	17	Inferior Conjunction
5/27/2012	4	Superior Conjunction
7/28/2012	17	Inferior Conjunction
9/10/2012	17	Superior Conjunction
11/17/2012	17	Inferior Conjunction

Venus

Date	Hour	Event
6/ 5/2012	18	Inferior Conjunction (Transit)

Mars

Date	Hour	Event
3/ 3/2012	17	Opposition

Jupiter

Date	Hour	Event
5/13/2012	17	Conjunction
12/ 2/2012	18	Opposition

Saturn

Date	Hour	Event
10/25/2012	4	Conjunction
4/15/2012	17	Opposition

Uranus

Date	Hour	Event
3/24/2012	17	Conjunction
9/29/2012	0	Opposition

Neptune

Date	Hour	Event
2/19/2012	17	Conjunction
8/24/2012	17	Opposition

Pluto

Date	Hour	Event
12/30/2012	17	Conjunction
6/29/2012	17	Opposition

Planet Data Report

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

Moon Apsides Report for 1/ 1/2012 to 12/31/2012

Date	Hour	Apsis	Distance (km)	Diameter
1/ 2/2012	13	Apogee	404588	0.4922°
1/17/2012	15	Perigee	369899	0.5384°
1/30/2012	11	Apogee	404325	0.4926°
2/11/2012	11	Perigee	367928	0.5413°
2/27/2012	7	Apogee	404841	0.4919°
3/10/2012	3	Perigee	362408	0.5495°
3/25/2012	23	Apogee	405774	0.4908°
4/ 7/2012	10	Perigee	358323	0.5558°
4/22/2012	7	Apogee	406430	0.4900°
5/ 5/2012	20	Perigee	356964	0.5579°
5/19/2012	9	Apogee	406439	0.4900°
6/ 3/2012	6	Perigee	358491	0.5555°
6/15/2012	18	Apogee	405796	0.4908°
7/ 1/2012	11	Perigee	362366	0.5496°
7/13/2012	10	Apogee	404793	0.4920°
7/29/2012	1	Perigee	367309	0.5422°
8/10/2012	4	Apogee	404121	0.4928°
8/23/2012	12	Perigee	369740	0.5386°
9/ 6/2012	23	Apogee	404302	0.4926°
9/18/2012	20	Perigee	365759	0.5445°
10/ 4/2012	18	Apogee	405183	0.4915°
10/16/2012	18	Perigee	360660	0.5522°
11/ 1/2012	9	Apogee	406065	0.4905°
11/14/2012	4	Perigee	357356	0.5573°
11/28/2012	13	Apogee	406366	0.4901°
12/12/2012	16	Perigee	357083	0.5577°
12/25/2012	14	Apogee	406094	0.4904°

Moon Nodes Report for 1/ 1/2012 to 12/31/2012

Date	Time	Node	Illuminated Fraction
1/ 6/2012	7:29	Descending	0.91
1/19/2012	11:26	Ascending	0.18
2/ 2/2012	13:01	Descending	0.72
2/15/2012	13:15	Ascending	0.41
2/29/2012	15:36	Descending	0.46
3/13/2012	13:40	Ascending	0.67
3/27/2012	17:18	Descending	0.22
4/ 9/2012	17:46	Ascending	0.88

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1704 meters Year 2012
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4/23/2012	20:43	Descending	0.06
5/ 7/2012	2:43	Ascending	0.99
5/21/2012	2:20	Descending	0.00
6/ 3/2012	13:37	Ascending	0.99
6/17/2012	8:42	Descending	0.05
6/30/2012	22:44	Ascending	0.89
7/14/2012	13:54	Descending	0.19
7/28/2012	3:33	Ascending	0.70
8/10/2012	17:03	Descending	0.41
8/24/2012	4:37	Ascending	0.46
9/ 6/2012	19:07	Descending	0.66
9/20/2012	5:53	Ascending	0.22
10/ 3/2012	22:14	Descending	0.87
10/17/2012	11:26	Ascending	0.06
10/31/2012	3:35	Descending	0.98
11/13/2012	21:36	Ascending	0.00
11/27/2012	10:04	Descending	0.99
12/11/2012	8:56	Ascending	0.06
12/24/2012	15:27	Descending	0.88

Meteor Showers Report for 1/ 1/2012 to 12/31/2012

Date	Meteor Shower	ZHR	RA	DEC	Illum. Frac.	Longitude
1/ 4/2012	Quadrantids	80	15h28m	50°	0.80	284°
4/11/2012	Virginids	5	14h04m	-9°	0.69	22°
4/21/2012	Lyrids	12	18h08m	32°	0.00	32°
4/27/2012	alpha-Scorpiids	5	16h32m	-24°	0.33	38°
5/ 4/2012	eta-Aquarids	35	22h20m	-1°	0.97	45°
5/12/2012	alpha-Scorpiids	5	16h04m	-24°	0.52	52°
6/ 9/2012	Ophiuchids	5	17h56m	-23°	0.68	79°
6/19/2012	Ophiuchids	5	17h20m	-20°	0.00	89°
7/ 7/2012	Capricornids	5			0.81	106°
7/14/2012	Capricornids	5	20h44m	-15°	0.18	113°
7/19/2012	alpha-Cygnids	5	21h00m	48°	0.00	118°
7/25/2012	Capricornids	5	21h00m	-15°	0.43	123°
7/28/2012	delta-Aquarids	20	22h36m	-17°	0.76	126°
7/30/2012	Piscis Australids	5	22h40m	-30°	0.92	128°
8/ 1/2012	alpha-Capricornids	5	20h36m	-10°	1.00	130°
8/ 5/2012	iota-Aquarids	8	22h10m	-15°	0.86	134°
8/11/2012	Perseids	75	3h04m	58°	0.32	140°
8/20/2012	alpha-Cygnids	5	21h00m	48°	0.11	148°
9/ 7/2012	Piscids	10	0h36m	7°	0.58	166°
9/20/2012	Piscids	5	0h24m	0°	0.27	178°
10/12/2012	Piscids	??	1h44m	14°	0.11	200°
10/21/2012	Orionids	25	6h24m	15°	0.45	209°
11/ 2/2012	Taurids	8	3h44m	14°	0.87	221°
11/17/2012	Leonids	10	10h08m	22°	0.20	236°
12/ 8/2012	Puppids-Velids	15	9h00m	-48°	0.28	257°
12/13/2012	Geminids	75	7h28m	32°	0.00	262°
12/22/2012	Ursids	5	14h28m	78°	0.74	271°
12/25/2012	Puppids-Velids	15	9h20m	-65°	0.94	274°

Midway, UT (J Clegg) Latitude: 40°30'43" N Longitude: 111°28'40" W
 Local Time = UT - 7.00 hours Elevation: 1704 meters Year 2012
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Twilight Report for 1/ 1/2012 to 12/31/2012

Date	Sun		Astronomical		Nautical		Civil	
	Rise	Set	Begin	End	Begin	End	Begin	End
1/ 1/2012	7:49	17:10	6:06	18:52	6:39	18:19	7:14	17:45
1/ 8/2012	7:49	17:16	6:07	18:58	6:40	18:25	7:14	17:51
1/15/2012	7:47	17:23	6:06	19:04	6:39	18:32	7:13	17:58
1/22/2012	7:44	17:31	6:04	19:11	6:36	18:39	7:09	18:06
1/29/2012	7:39	17:40	6:00	19:19	6:32	18:46	7:05	18:14
2/ 5/2012	7:32	17:48	5:54	19:26	6:26	18:54	6:59	18:22
2/12/2012	7:24	17:57	5:47	19:33	6:19	19:02	6:51	18:30
2/19/2012	7:15	18:05	5:39	19:41	6:11	19:09	6:43	18:38
2/26/2012	7:05	18:13	5:30	19:48	6:01	19:17	6:33	18:45
3/ 4/2012	6:54	18:21	5:19	19:56	5:51	19:25	6:23	18:53
3/11/2012	6:43	18:29	5:08	20:04	5:40	19:32	6:12	19:01
3/18/2012	6:32	18:37	4:56	20:12	5:28	19:40	6:00	19:08
3/25/2012	6:20	18:44	4:44	20:20	5:16	19:48	5:49	19:16
4/ 1/2012	6:09	18:51	4:31	20:29	5:04	19:56	5:37	19:23
4/ 8/2012	5:57	18:58	4:18	20:38	4:52	20:04	5:25	19:31
4/15/2012	5:47	19:06	4:04	20:48	4:40	20:12	5:14	19:38
4/22/2012	5:36	19:13	3:51	20:58	4:28	20:21	5:03	19:46
4/29/2012	5:27	19:20	3:38	21:09	4:17	20:30	4:53	19:54
5/ 6/2012	5:18	19:27	3:26	21:19	4:07	20:39	4:43	20:02
5/13/2012	5:11	19:34	3:15	21:30	3:57	20:48	4:35	20:10
5/20/2012	5:05	19:41	3:05	21:41	3:49	20:56	4:28	20:17
5/27/2012	5:00	19:47	2:56	21:50	3:42	21:04	4:23	20:24
6/ 3/2012	4:57	19:52	2:50	21:59	3:38	21:11	4:19	20:30
6/10/2012	4:55	19:56	2:46	22:05	3:35	21:16	4:17	20:34
6/17/2012	4:55	19:59	2:45	22:09	3:34	21:20	4:17	20:37
6/24/2012	4:57	20:00	2:46	22:11	3:36	21:21	4:18	20:39
7/ 1/2012	4:59	20:00	2:50	22:09	3:39	21:20	4:21	20:38
7/ 8/2012	5:04	19:58	2:57	22:05	3:45	21:17	4:26	20:36
7/15/2012	5:09	19:55	3:05	21:58	3:51	21:12	4:32	20:32
7/22/2012	5:14	19:50	3:15	21:50	3:59	21:05	4:38	20:26
7/29/2012	5:21	19:43	3:25	21:39	4:07	20:57	4:45	20:19
8/ 5/2012	5:27	19:36	3:35	21:28	4:16	20:47	4:53	20:10
8/12/2012	5:34	19:27	3:46	21:15	4:24	20:37	5:00	20:01
8/19/2012	5:41	19:17	3:56	21:02	4:33	20:25	5:08	19:50
8/26/2012	5:48	19:06	4:05	20:49	4:41	20:13	5:15	19:39
9/ 2/2012	5:55	18:55	4:15	20:35	4:49	20:01	5:22	19:28
9/ 9/2012	6:01	18:44	4:23	20:22	4:57	19:48	5:29	19:16
9/16/2012	6:08	18:32	4:32	20:09	5:04	19:36	5:37	19:04
9/23/2012	6:15	18:20	4:39	19:56	5:12	19:24	5:43	18:52
9/30/2012	6:22	18:09	4:47	19:44	5:19	19:12	5:50	18:40
10/ 7/2012	6:29	17:57	4:54	19:32	5:26	19:01	5:57	18:29
10/14/2012	6:36	17:46	5:02	19:21	5:33	18:50	6:05	18:18
10/21/2012	6:44	17:36	5:09	19:12	5:40	18:40	6:12	18:08
10/28/2012	6:52	17:27	5:16	19:03	5:47	18:31	6:19	17:59
11/ 4/2012	7:00	17:18	5:23	18:56	5:55	18:24	6:27	17:52
11/11/2012	7:08	17:11	5:30	18:50	6:02	18:18	6:35	17:45
11/18/2012	7:16	17:06	5:37	18:45	6:09	18:13	6:42	17:40
11/25/2012	7:24	17:02	5:43	18:43	6:16	18:10	6:50	17:36
12/ 2/2012	7:32	16:59	5:50	18:41	6:22	18:09	6:56	17:35
12/ 9/2012	7:38	16:59	5:55	18:42	6:28	18:09	7:02	17:35
12/16/2012	7:43	17:01	6:00	18:44	6:33	18:11	7:07	17:36
12/23/2012	7:47	17:04	6:04	18:47	6:37	18:14	7:11	17:40
12/30/2012	7:49	17:09	6:06	18:52	6:39	18:19	7:13	17:44