

December 01, 2017 12:00:00 PM MST

Object	Right ascens	Declination	Earth distance	Sun distance
Sun	16h 32m 30s	-21° 54' 54"	0	0
Mercury	17h 56m 06s	-25° 01' 14"	125,725,664	50,777,662
Venus	15h 54m 02s	-19° 33' 39"	251,196,135	108,283,139
Mars	13h 35m 05s	-08° 47' 03"	329,415,111	247,025,438
Ceres	09h 28m 52s	+23° 15' 12"	308,171,614	387,458,485
Jupiter	14h 36m 31s	-14° 13' 46"	939,784,521	813,302,660
Saturn	17h 50m 42s	-22° 29' 07"	1,645,082,210	1,505,580,743
Uranus	01h 33m 29s	+09° 07' 36"	2,871,414,951	2,977,889,771
Neptune	22h 53m 07s	-08° 06' 26"	4,472,930,666	4,479,749,753
Pluto	19h 16m 58s	-21° 45' 02"	5,120,389,782	5,005,062,505
Moon	02h 52m 04s	+10° 21' 02"	363,718	0

(Distances in km)

Object	Rise:	Tran	Set:	Phase	Constl	Magnitud
Sun	07:02	11:49	16:36	0.00%	Oph	unknown
Mercury	08:40	13:13	17:45	36.83%	Sgr	0.2
Venus	06:15	11:11	16:06	98.77%	Lib	-3.9
Mars	03:18	08:52	14:25	95.40%	Vir	1.7
Ceres	21:19	04:48	12:13	99.50%	Leo	8.0
Jupiter	04:40	09:53	15:07	99.81%	Lib	-1.7
Saturn	08:24	13:07	17:50	99.98%	Sgr	0.5
Uranus	14:16	20:49	03:25	99.97%	Psc	5.7
Neptune	12:34	18:09	23:44	99.97%	Aqr	7.9
Pluto	09:47	14:32	19:18	99.99%	Sgr	14.3
Moon	15:36	22:29	04:22	94.71%	Cet	unknown

Meteor Radiant Report

Name	Month/Day	RA	Decl	Hourly Rate
December Phoenicids	12/05	1.0	-55.0	100
December Phoenicids	12/05	1.0	-45.0	100
Monocerotids	12/10	6.7	14.0	3
Southern Chi Orionids	12/10	5.7	16.0	8
Northern Chi Orionids	12/11	5.6	26.0	4
Sigma Hydrids	12/11	8.4	1.6	5
Delta Arietids	12/11	3.5	22.0	5
Geminids	12/14	7.5	32.5	90
Ursids	12/22	14.5	75.8	20

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Date	Moonrise	Moonset	Sunrise	Sunset	Begin Twilight	End Twilight
12/1/17	15:37	04:22	07:02	16:36	05:26	18:12
12/2/17	16:20	05:34	07:03	16:36	05:27	18:12
12/3/17	17:10	06:46	07:04	16:36	05:28	18:12
12/4/17	18:07	07:57	07:05	16:36	05:29	18:12
12/5/17	19:10	09:02	07:06	16:36	05:30	18:12
12/6/17	20:18	10:00	07:06	16:36	05:30	18:12
12/7/17	21:27	10:50	07:07	16:36	05:31	18:12
12/8/17	22:34	11:33	07:08	16:36	05:32	18:12
12/9/17	23:39	12:10	07:09	16:36	05:33	18:12
12/10/17	-----	12:43	07:10	16:36	05:33	18:12
12/11/17	00:42	13:14	07:11	16:36	05:34	18:13
12/12/17	01:43	13:44	07:11	16:36	05:35	18:13
12/13/17	02:42	14:14	07:12	16:36	05:36	18:13
12/14/17	03:41	14:45	07:13	16:37	05:36	18:13
12/15/17	04:38	15:19	07:14	16:37	05:37	18:14
12/16/17	05:35	15:56	07:14	16:37	05:38	18:14
12/17/17	06:29	16:36	07:15	16:38	05:38	18:14
12/18/17	07:22	17:21	07:16	16:38	05:39	18:15
12/19/17	08:11	18:09	07:16	16:38	05:39	18:15
12/20/17	08:56	19:01	07:17	16:39	05:40	18:16
12/21/17	09:37	19:56	07:17	16:39	05:40	18:16
12/22/17	10:14	20:52	07:18	16:40	05:41	18:17
12/23/17	10:48	21:50	07:18	16:40	05:41	18:17
12/24/17	11:21	22:50	07:19	16:41	05:42	18:18
12/25/17	11:52	23:51	07:19	16:42	05:42	18:18
12/26/17	12:22	-----	07:19	16:42	05:42	18:19
12/27/17	12:55	00:54	07:20	16:43	05:43	18:20
12/28/17	13:30	02:00	07:20	16:44	05:43	18:20
12/29/17	14:08	03:08	07:20	16:44	05:43	18:21
12/30/17	14:54	04:19	07:20	16:45	05:44	18:22
12/31/17	15:46	05:30	07:21	16:46	05:44	18:22