

Norfolk Astronomical Society



<http://norfolkastronomical.org>

July 2013

Monthly Sky Calendar
Prepared Specifically For
The Hampton Roads Area

Norfolk Astronomical Society Astronomical Calendar

June 2013							July 2013							August 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	1	2	3	4	5	6	4	5	6	7	8	9	10	
2	3	4	5	6	7	8	7	8	9	10	11	12	13	11	12	13	14	15	16	17
9	10	11	12	13	14	15	14	15	16	17	18	19	20	18	19	20	21	22	23	24
16	17	18	19	20	21	22	21	22	23	24	25	26	27	25	26	27	28	29	30	31
23	24	25	26	27	28	29	28	29	30	31				25	26	27	28	29	30	31
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Calendar

	Start	End	Category	Description
1 Jul 2013	1:15 AM	1:15 AM	Moon	Moonrise
	4:03 AM	4:03 AM	Twilight	Astronomical Twilight begins
	5:17 AM	5:17 AM	Jupiter	Jupiter rises
	5:53 AM	5:53 AM	Sun	Sunrise
	2:48 PM	2:48 PM	Moon	Moonset
	7:49 PM	7:49 PM	Jupiter	Jupiter sets
	8:00 PM	8:00 PM	Diary	Pluto at opposition
	8:29 PM	8:29 PM	Sun	Sunset
	10:19 PM	10:19 PM	Twilight	Astronomical Twilight ends
2 Jul 2013	1:50 AM	1:50 AM	Moon	Moonrise
	4:03 AM	4:03 AM	Twilight	Astronomical Twilight begins
	5:14 AM	5:14 AM	Jupiter	Jupiter rises
	5:53 AM	5:53 AM	Sun	Sunrise
	3:45 PM	3:45 PM	Moon	Moonset
	7:47 PM	7:47 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
	10:19 PM	10:19 PM	Twilight	Astronomical Twilight ends
	3 Jul 2013	2:27 AM	2:27 AM	Moon
4:04 AM		4:04 AM	Twilight	Astronomical Twilight begins
5:11 AM		5:11 AM	Jupiter	Jupiter rises
5:54 AM		5:54 AM	Sun	Sunrise
12:23 PM		12:23 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
4:40 PM		4:40 PM	Moon	Moonset
7:44 PM		7:44 PM	Jupiter	Jupiter sets
8:29 PM		8:29 PM	Sun	Sunset
10:19 PM		10:19 PM	Twilight	Astronomical Twilight ends
4 Jul 2013	12:00 AM	12:00 AM	Public Holiday	Independence Day holiday
	3:07 AM	3:07 AM	Moon	Moonrise
	4:05 AM	4:05 AM	Twilight	Astronomical Twilight begins
	5:08 AM	5:08 AM	Jupiter	Jupiter rises
	5:54 AM	5:54 AM	Sun	Sunrise
	5:33 PM	5:33 PM	Moon	Moonset
	7:41 PM	7:41 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
	9:00 PM	9:00 PM	Diary	Earth at aphelion
10:18 PM	10:18 PM	Twilight	Astronomical Twilight ends	
5 Jul 2013	2:00 AM	2:00 AM	Diary	Aldebaran 3.3S of Moon
	3:51 AM	3:51 AM	Moon	Moonrise

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June 2013							July 2013							August 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	1	2	3	4	5	6	4	5	6	7	8	9	10	
2	3	4	5	6	7	8	7	8	9	10	11	12	13	11	12	13	14	15	16	17
9	10	11	12	13	14	15	14	15	16	17	18	19	20	18	19	20	21	22	23	24
16	17	18	19	20	21	22	21	22	23	24	25	26	27	25	26	27	28	29	30	31
23	24	25	26	27	28	29	28	29	30	31										
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Calendar

	Start	End	Category	Description
5 Jul 2013	4:05 AM	4:05 AM	Twilight	Astronomical Twilight begins
	5:05 AM	5:05 AM	Jupiter	Jupiter rises
	5:55 AM	5:55 AM	Sun	Sunrise
	6:23 PM	6:23 PM	Moon	Moonset
	7:00 PM	7:00 PM	Meetings	NAS Observing Session (Gates Co., NC)
	7:38 PM	7:38 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
	10:18 PM	10:18 PM	Twilight	Astronomical Twilight ends
6 Jul 2013	4:06 AM	4:06 AM	Twilight	Astronomical Twilight begins
	4:38 AM	4:38 AM	Moon	Moonrise
	5:02 AM	5:02 AM	Jupiter	Jupiter rises
	5:55 AM	5:55 AM	Sun	Sunrise
	9:00 AM	9:00 AM	Diary	Mars 3.7N of Moon
	9:12 AM	9:12 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	7:10 PM	7:10 PM	Moon	Moonset
	7:35 PM	7:35 PM	Jupiter	Jupiter sets
	8:28 PM	8:28 PM	Sun	Sunset
	10:00 PM	10:00 PM	Diary	Moon at apogee
10:18 PM	10:18 PM	Twilight	Astronomical Twilight ends	
7 Jul 2013	12:00 AM	12:00 AM	Diary	Jupiter 3.5N of Moon
	4:07 AM	4:07 AM	Twilight	Astronomical Twilight begins
	4:59 AM	4:59 AM	Jupiter	Jupiter rises
	5:29 AM	5:29 AM	Moon	Moonrise
	5:56 AM	5:56 AM	Sun	Sunrise
	7:32 PM	7:32 PM	Jupiter	Jupiter sets
	7:53 PM	7:53 PM	Moon	Moonset
	8:28 PM	8:28 PM	Sun	Sunset
	8:54 PM	8:54 PM	Sat Pass (HST)	CHES:HST Passes W to E (Azm 178.7 Alt 26)
	10:17 PM	10:17 PM	Twilight	Astronomical Twilight ends
	10:34 PM	10:34 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 213.3 Alt 19)
	10:47 PM	10:47 PM	Iridium Flare	CHES:Iridium 52 Flares at mag. -1.6 (Azm 260 Alt 17)
	10:56 PM	10:56 PM	Iridium Flare	CHES:Iridium 53 Flares at mag. -1.3 (Azm 261 Alt 13)
11:05 PM	11:05 PM	Iridium Flare	CHES:Iridium 84 Flares at mag. 1.8 (Azm 263 Alt 10)	
8 Jul 2013	3:37 AM	3:37 AM	Iridium Flare	CHES:Iridium 49 Flares at mag. 0.0 (Azm 279 Alt 36)
	4:00 AM	4:00 AM	Diary	NEW MOON
	4:08 AM	4:08 AM	Twilight	Astronomical Twilight begins
	4:56 AM	4:56 AM	Jupiter	Jupiter rises
	5:57 AM	5:57 AM	Sun	Sunrise
	6:21 AM	6:21 AM	Moon	Moonrise

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June 2013							July 2013							August 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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2	3	4	5	6	7	8	14	15	16	17	18	19	20	11	12	13	14	15	16	17
9	10	11	12	13	14	15	21	22	23	24	25	26	27	18	19	20	21	22	23	24
16	17	18	19	20	21	22	28	29	30	31				25	26	27	28	29	30	31
23	24	25	26	27	28	29														
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Calendar

	Start	End	Category	Description
8 Jul 2013	8:00 AM	8:00 AM	Diary	Mercury 0.1S of Moon Occn
	8:44 AM	8:44 AM	Iridium Flare	CHES:Iridium 83 Flares at mag.-5.2 (Azm 092 Alt 44)
	5:50 PM	5:50 PM	Iridium Flare	CHES:Iridium 91 Flares at mag.-6.5 (Azm 291 Alt 50)
	7:29 PM	7:29 PM	Jupiter	Jupiter sets
	8:28 PM	8:28 PM	Sun	Sunset
	8:32 PM	8:32 PM	Moon	Moonset
	8:49 PM	8:49 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 182.0 Alt 26)
	10:17 PM	10:17 PM	Twilight	Astronomical Twilight ends
	10:29 PM	10:29 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 210.6 Alt 17)
	10:39 PM	10:39 PM	Iridium Flare	CHES:Iridium 16 Flares at mag. 1.7 (Azm 260 Alt 19)
	10:41 PM	10:41 PM	Iridium Flare	CHES:Iridium 10 Flares at mag. 0.4 (Azm 262 Alt 17)
	10:48 PM	10:48 PM	Iridium Flare	CHES:Iridium 90 Flares at mag.-1.7 (Azm 263 Alt 13)
	10:50 PM	10:50 PM	Iridium Flare	CHES:Iridium 54 Flares at mag.-6.1 (Azm 262 Alt 14)
	10:59 PM	10:59 PM	Iridium Flare	CHES:Iridium 12 Flares at mag. 0.5 (Azm 264 Alt 10)
9 Jul 2013	12:00 AM	12:00 AM	Diary	Saturn stationary
	3:31 AM	3:31 AM	Iridium Flare	CHES:Iridium 22 Flares at mag.-3.4 (Azm 279 Alt 38)
	4:09 AM	4:09 AM	Twilight	Astronomical Twilight begins
	4:53 AM	4:53 AM	Jupiter	Jupiter rises
	5:57 AM	5:57 AM	Sun	Sunrise
	6:00 AM	6:00 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	6:28 AM	6:28 AM	Meteor Shower	Pegasids meteor peak (zhr= 8)
	7:16 AM	7:16 AM	Moon	Moonrise
	4:00 PM	4:00 PM	Diary	Mercury inferior conjunction
	5:43 PM	5:43 PM	Iridium Flare	CHES:Iridium 59 Flares at mag.-6.3 (Azm 289 Alt 49)
	7:26 PM	7:26 PM	Jupiter	Jupiter sets
	8:28 PM	8:28 PM	Sun	Sunset
	8:44 PM	8:44 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 185.2 Alt 25)
	9:08 PM	9:08 PM	Moon	Moonset
	10:16 PM	10:16 PM	Twilight	Astronomical Twilight ends
	10:35 PM	10:35 PM	Iridium Flare	CHES:Iridium 13 Flares at mag. 1.9 (Azm 263 Alt 18)
	10:44 PM	10:44 PM	Iridium Flare	CHES:Iridium 83 Flares at mag.-2.5 (Azm 264 Alt 14)
	10:53 PM	10:53 PM	Iridium Flare	CHES:Iridium 86 Flares at mag.-1.5 (Azm 266 Alt 11)
10 Jul 2013	3:25 AM	3:25 AM	Iridium Flare	CHES:Iridium 25 Flares at mag.-1.4 (Azm 281 Alt 37)
	4:10 AM	4:10 AM	Twilight	Astronomical Twilight begins
	4:50 AM	4:50 AM	Jupiter	Jupiter rises
	5:25 AM	5:25 AM	Jup Sats	I.Sh.I
	5:58 AM	5:58 AM	Sun	Sunrise
	8:12 AM	8:12 AM	Moon	Moonrise
	7:23 PM	7:23 PM	Jupiter	Jupiter sets
	8:27 PM	8:27 PM	Sun	Sunset

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June 2013							July 2013							August 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10
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16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24
23	24	25	26	27	28	29	28	29	30	31				25	26	27	28	29	30	31
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Calendar

	Start	End	Category	Description
10 Jul 2013	8:39 PM	8:39 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 188.2 Alt 23)
	9:42 PM	9:42 PM	Moon	Moonset
	10:16 PM	10:16 PM	Twilight	Astronomical Twilight ends
	10:38 PM	10:38 PM	Iridium Flare	CHES:Iridium 56 Flares at mag. 0.5 (Azm 266 Alt 15)
	10:47 PM	10:47 PM	Iridium Flare	CHES:Iridium 52 Flares at mag.-5.9 (Azm 267 Alt 12)
	11:22 PM	11:22 PM	Iridium Flare	CHES:Iridium 70 Flares at mag.-0.2 (Azm 039 Alt 11)
11 Jul 2013	3:19 AM	3:19 AM	Iridium Flare	CHES:Iridium 47 Flares at mag. 1.1 (Azm 282 Alt 37)
	3:26 AM	3:26 AM	Iridium Flare	CHES:Iridium 26 Flares at mag. 0.3 (Azm 282 Alt 31)
	3:28 AM	3:28 AM	Iridium Flare	CHES:Iridium 20 Flares at mag. 1.5 (Azm 282 Alt 30)
	4:10 AM	4:10 AM	Twilight	Astronomical Twilight begins
	4:48 AM	4:48 AM	Jupiter	Jupiter rises
	5:05 AM	5:05 AM	Iridium Flare	CHES:Iridium 57 Flares at mag. 1.0 (Azm 252 Alt 60)
	5:08 AM	5:08 AM	Jup Sats	I.Oc.R
	5:58 AM	5:58 AM	Sun	Sunrise
	9:08 AM	9:08 AM	Moon	Moonrise
	7:00 PM	7:00 PM	Diary	Regulus 5.4N of Moon
	7:20 PM	7:20 PM	Jupiter	Jupiter sets
	8:27 PM	8:27 PM	Sun	Sunset
	8:34 PM	8:34 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 191.4 Alt 21)
	10:14 PM	10:14 PM	Moon	Moonset
	10:15 PM	10:15 PM	Twilight	Astronomical Twilight ends
	10:32 PM	10:32 PM	Iridium Flare	CHES:Iridium 84 Flares at mag. 1.9 (Azm 268 Alt 15)
10:34 PM	10:34 PM	Iridium Flare	CHES:Iridium 16 Flares at mag. 1.5 (Azm 267 Alt 15)	
10:42 PM	10:42 PM	Iridium Flare	CHES:Iridium 10 Flares at mag.-1.3 (Azm 269 Alt 12)	
11:16 PM	11:16 PM	Iridium Flare	CHES:Iridium 64 Flares at mag.-6.0 (Azm 041 Alt 12)	
12 Jul 2013	2:50 AM	2:50 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	3:21 AM	3:21 AM	Iridium Flare	CHES:Iridium 3 Flares at mag.-1.9 (Azm 283 Alt 31)
	4:11 AM	4:11 AM	Twilight	Astronomical Twilight begins
	4:45 AM	4:45 AM	Jupiter	Jupiter rises
	4:58 AM	4:58 AM	Iridium Flare	CHES:Iridium 60 Flares at mag.-0.1 (Azm 253 Alt 60)
	5:59 AM	5:59 AM	Sun	Sunrise
	10:05 AM	10:05 AM	Moon	Moonrise
	7:17 PM	7:17 PM	Jupiter	Jupiter sets
	8:27 PM	8:27 PM	Sun	Sunset
	9:46 PM	9:46 PM	Iridium Flare	CHES:Iridium 90 Flares at mag. 1.6 (Azm 346 Alt 12)
	10:14 PM	10:14 PM	Twilight	Astronomical Twilight ends
	10:36 PM	10:36 PM	Iridium Flare	CHES:Iridium 13 Flares at mag. 1.0 (Azm 270 Alt 12)
	10:45 PM	10:45 PM	Moon	Moonset
11:10 PM	11:10 PM	Iridium Flare	CHES:Iridium 67 Flares at mag.-0.9 (Azm 043 Alt 13)	
11:20 PM	11:20 PM	Iridium Flare	CHES:Iridium 68 Flares at mag. 1.4 (Azm 045 Alt 17)	

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June 2013							July 2013							August 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1			1	2	3	4	5	6				1	2	3
2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10
9	10	11	12	13	14	15	14	15	16	17	18	19	20	11	12	13	14	15	16	17
16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24
23	24	25	26	27	28	29	28	29	30	31				25	26	27	28	29	30	31
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Calendar

	Start	End	Category	Description
13 Jul 2013	3:15 AM	3:15 AM	Iridium Flare	CHES:Iridium 76 Flares at mag.-7.3 (Azm 284 Alt 31)
	4:12 AM	4:12 AM	Twilight	Astronomical Twilight begins
	4:42 AM	4:42 AM	Jupiter	Jupiter rises
	4:52 AM	4:52 AM	Iridium Flare	CHES:Iridium 29 Flares at mag.-8.4 (Azm 254 Alt 61)
	6:00 AM	6:00 AM	Sun	Sunrise
	11:03 AM	11:03 AM	Moon	Moonrise
	7:14 PM	7:14 PM	Jupiter	Jupiter sets
	8:26 PM	8:26 PM	Sun	Sunset
	8:26 PM	8:26 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 165.9 Alt 12)
	8:43 PM	8:43 PM	Lunar Occult	Moon occults 6.4 mag. double star ZC1688(d)
	9:40 PM	9:40 PM	Iridium Flare	CHES:Iridium 10 Flares at mag. 0.9 (Azm 346 Alt 13)
	10:14 PM	10:14 PM	Twilight	Astronomical Twilight ends
	10:39 PM	10:39 PM	Iridium Flare	CHES:Iridium 56 Flares at mag. 0.8 (Azm 274 Alt 10)
	11:04 PM	11:04 PM	Iridium Flare	CHES:Iridium 72 Flares at mag. 1.6 (Azm 044 Alt 13)
	11:14 PM	11:14 PM	Iridium Flare	CHES:Iridium 75 Flares at mag.-1.4 (Azm 046 Alt 17)
	11:16 PM	11:16 PM	Moon	Moonsset
14 Jul 2013	3:18 AM	3:18 AM	Iridium Flare	CHES:Iridium 47 Flares at mag. 1.8 (Azm 286 Alt 25)
	4:13 AM	4:13 AM	Twilight	Astronomical Twilight begins
	4:39 AM	4:39 AM	Jupiter	Jupiter rises
	4:46 AM	4:46 AM	Iridium Flare	CHES:Iridium 32 Flares at mag.-0.4 (Azm 254 Alt 62)
	5:06 AM	5:06 AM	Sat Pass (ISS)	CHES:ISS Passes S to NE (Azm 129.3 Alt 16)
	6:00 AM	6:00 AM	Sun	Sunrise
	12:02 PM	12:02 PM	Moon	Moonrise
	7:11 PM	7:11 PM	Jupiter	Jupiter sets
	8:26 PM	8:26 PM	Sun	Sunset
	9:33 PM	9:33 PM	Iridium Flare	CHES:Iridium 13 Flares at mag.-1.6 (Azm 346 Alt 14)
	10:13 PM	10:13 PM	Twilight	Astronomical Twilight ends
	11:08 PM	11:08 PM	Iridium Flare	CHES:Iridium 63 Flares at mag.-5.6 (Azm 048 Alt 17)
	11:39 PM	11:39 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	11:49 PM	11:49 PM	Moon	Moonsset
15 Jul 2013	4:14 AM	4:14 AM	Twilight	Astronomical Twilight begins
	4:36 AM	4:36 AM	Jupiter	Jupiter rises
	5:24 AM	5:24 AM	Jup Sats	ILSh.E
	5:50 AM	5:50 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 231.4 Alt 11)
	6:01 AM	6:01 AM	Sun	Sunrise
	1:04 PM	1:04 PM	Moon	Moonrise
	7:08 PM	7:08 PM	Jupiter	Jupiter sets
	8:25 PM	8:25 PM	Sun	Sunset
	9:18 PM	9:18 PM	Iridium Flare	CHES:Iridium 90 Flares at mag. 2.0 (Azm 346 Alt 20)
	9:27 PM	9:27 PM	Iridium Flare	CHES:Iridium 50 Flares at mag.-5.8 (Azm 345 Alt 16)

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June 2013							July 2013							August 2013							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
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2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10	
9	10	11	12	13	14	15	14	15	16	17	18	19	20	11	12	13	14	15	16	17	
16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24	
23	24	25	26	27	28	29	28	29	30	31				25	26	27	28	29	30	31	
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Calendar

	Start	End	Category	Description
15 <small>Jul 2013</small>	9:53 PM	9:53 PM	Lunar Occult	Moon occults 6.7 mag. double star ZC1914(d)
	10:12 PM	10:12 PM	Twilight	Astronomical Twilight ends
	11:02 PM	11:02 PM	Iridium Flare	CHES:Iridium 66 Flares at mag.-0.4 (Azim 050 Alt 18)
	11:12 PM	11:12 PM	Iridium Flare	CHES:Iridium 67 Flares at mag. 1.5 (Azim 051 Alt 22)
16 <small>Jul 2013</small>	12:00 AM	12:00 AM	Diary	FIRST QUARTER
	12:00 AM	12:00 AM	Diary	Spica 0.3S of Moon Occn
	12:24 AM	12:24 AM	Moon	Moonset
	4:15 AM	4:15 AM	Twilight	Astronomical Twilight begins
	4:33 AM	4:33 AM	Jupiter	Jupiter rises
	4:42 AM	4:42 AM	Iridium Flare	CHES:Iridium 33 Flares at mag. 1.5 (Azim 258 Alt 53)
	5:04 AM	5:04 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azim 135.6 Alt 51)
	5:31 AM	5:31 AM	Jup Sats	III.Sh.E
	6:02 AM	6:02 AM	Sun	Sunrise
	2:07 PM	2:07 PM	Moon	Moonrise
	7:05 PM	7:05 PM	Jupiter	Jupiter sets
	8:00 PM	8:00 PM	Diary	Saturn 3.2N of Moon
	8:25 PM	8:25 PM	Sun	Sunset
	9:21 PM	9:21 PM	Iridium Flare	CHES:Iridium 53 Flares at mag.-0.8 (Azim 345 Alt 17)
	9:24 PM	9:24 PM	Iridium Flare	CHES:Iridium 16 Flares at mag.-0.6 (Azim 345 Alt 16)
	10:11 PM	10:11 PM	Twilight	Astronomical Twilight ends
10:56 PM	10:56 PM	Iridium Flare	CHES:Iridium 21 Flares at mag. 1.9 (Azim 051 Alt 18)	
11:02 PM	11:02 PM	Iridium Flare	CHES:Iridium 74 Flares at mag.-0.1 (Azim 052 Alt 19)	
11:06 PM	11:06 PM	Iridium Flare	CHES:Iridium 72 Flares at mag.-0.8 (Azim 053 Alt 22)	
17 <small>Jul 2013</small>	1:04 AM	1:04 AM	Moon	Moonset
	4:15 AM	4:15 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azim 131.6 Alt 26)
	4:16 AM	4:16 AM	Twilight	Astronomical Twilight begins
	4:30 AM	4:30 AM	Jupiter	Jupiter rises
	4:37 AM	4:37 AM	Iridium Flare	CHES:Iridium 30 Flares at mag. 1.1 (Azim 260 Alt 52)
	5:51 AM	5:51 AM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azim 307.7 Alt 27)
	6:02 AM	6:02 AM	Sun	Sunrise
	3:12 PM	3:12 PM	Moon	Moonrise
	7:02 PM	7:02 PM	Jupiter	Jupiter sets
	8:24 PM	8:24 PM	Sun	Sunset
	8:28 PM	8:28 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	9:00 PM	9:00 PM	Diary	Uranus stationary
	9:15 PM	9:15 PM	Iridium Flare	CHES:Iridium 54 Flares at mag. 1.0 (Azim 344 Alt 18)
	10:10 PM	10:10 PM	Twilight	Astronomical Twilight ends
11:00 PM	11:00 PM	Iridium Flare	CHES:Iridium 62 Flares at mag.-6.9 (Azim 054 Alt 22)	

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June 2013							July 2013							August 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
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2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10
9	10	11	12	13	14	15	14	15	16	17	18	19	20	11	12	13	14	15	16	17
16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24
23	24	25	26	27	28	29	28	29	30	31				25	26	27	28	29	30	31
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Calendar

	Start	End	Category	Description
18 Jul 2013	1:49 AM	1:49 AM	Moon	Moonset
	4:17 AM	4:17 AM	Twilight	Astronomical Twilight begins
	4:27 AM	4:27 AM	Jupiter	Jupiter rises
	4:31 AM	4:31 AM	Iridium Flare	CHES:Iridium 57 Flares at mag.-3.1 (Azm 260 Alt 53)
	5:03 AM	5:03 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 322.9 Alt 49)
	6:03 AM	6:03 AM	Sun	Sunrise
	4:18 PM	4:18 PM	Moon	Moonrise
	5:47 PM	5:47 PM	Lunar Occult	Moon occults 2.6 mag. double star ZC2302(d) beta Sco [Acraab]
	6:53 PM	6:53 PM	Iridium Flare	CHES:Iridium 6 Flares at mag.-7.0 (Azm 317 Alt 49)
	6:56 PM	6:56 PM	Lunar Occult	Moon occults 2.6 mag. double star ZC2302(r) beta Sco [Acraab]
	6:59 PM	6:59 PM	Jupiter	Jupiter sets
	8:24 PM	8:24 PM	Sun	Sunset
	10:10 PM	10:10 PM	Twilight	Astronomical Twilight ends
	10:54 PM	10:54 PM	Iridium Flare	CHES:Iridium 65 Flares at mag.-0.7 (Azm 056 Alt 23)
19 Jul 2013	12:15 AM	12:15 AM	Lunar Occult	Moon occults 6.4 mag. star ZC2338(d)
	2:42 AM	2:42 AM	Moon	Moonset
	3:06 AM	3:06 AM	Iridium Flare	CHES:Iridium 23 Flares at mag. 1.7 (Azm 294 Alt 17)
	4:14 AM	4:14 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 144.9 Alt 87)
	4:19 AM	4:19 AM	Twilight	Astronomical Twilight begins
	4:24 AM	4:24 AM	Jupiter	Jupiter rises
	4:25 AM	4:25 AM	Iridium Flare	CHES:Iridium 60 Flares at mag.-8.3 (Azm 262 Alt 53)
	6:04 AM	6:04 AM	Sun	Sunrise
	5:23 PM	5:23 PM	Moon	Moonrise
	6:56 PM	6:56 PM	Jupiter	Jupiter sets
	8:23 PM	8:23 PM	Sun	Sunset
	10:09 PM	10:09 PM	Twilight	Astronomical Twilight ends
	10:48 PM	10:48 PM	Iridium Flare	CHES:Iridium 68 Flares at mag. 1.6 (Azm 057 Alt 22)
	10:57 PM	10:57 PM	Iridium Flare	CHES:Iridium 21 Flares at mag. 0.3 (Azm 058 Alt 28)
	11:28 PM	11:28 PM	Iridium Flare	CHES:Iridium 15 Flares at mag. 1.3 (Azm 242 Alt 21)
20 Jul 2013	12:44 AM	12:44 AM	Lunar Occult	Moon occults 4.4 mag. star ZC2498(D) xi Oph
	3:26 AM	3:26 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 84.2 Alt 30)
	3:41 AM	3:41 AM	Moon	Moonset
	4:19 AM	4:19 AM	Iridium Flare	CHES:Iridium 29 Flares at mag.-0.2 (Azm 262 Alt 53)
	4:20 AM	4:20 AM	Twilight	Astronomical Twilight begins
	4:21 AM	4:21 AM	Jupiter	Jupiter rises
	4:23 AM	4:23 AM	Iridium Flare	CHES:Iridium 28 Flares at mag.-0.3 (Azm 263 Alt 49)
	5:02 AM	5:02 AM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 330.4 Alt 21)
	5:20 AM	5:20 AM	Jup Sats	IV.Sh.I
	6:05 AM	6:05 AM	Sun	Sunrise
	8:00 AM	8:00 AM	Diary	Mercury stationary

Norfolk Astronomical Society Astronomical Calendar

June 2013							July 2013							August 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	1	2	3	4	5	6	4	5	6	7	8	9	10	
2	3	4	5	6	7	8	7	8	9	10	11	12	13	11	12	13	14	15	16	17
9	10	11	12	13	14	15	14	15	16	17	18	19	20	18	19	20	21	22	23	24
16	17	18	19	20	21	22	21	22	23	24	25	26	27	25	26	27	28	29	30	31
23	24	25	26	27	28	29	28	29	30	31				25	26	27	28	29	30	31
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Calendar

	Start	End	Category	Description
20 Jul 2013	4:45 PM	4:45 PM	Iridium Flare	CHES:Iridium 60 Flares at mag.-4.1 (Azm 267 Alt 44)
	5:17 PM	5:17 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	6:24 PM	6:24 PM	Moon	Moonrise
	6:53 PM	6:53 PM	Jupiter	Jupiter sets
	8:23 PM	8:23 PM	Sun	Sunset
	10:08 PM	10:08 PM	Twilight	Astronomical Twilight ends
	10:51 PM	10:51 PM	Iridium Flare	CHES:Iridium 70 Flares at mag.-5.3 (Azm 059 Alt 27)
	11:19 PM	11:19 PM	Iridium Flare	CHES:Iridium 98 Flares at mag. 1.3 (Azm 240 Alt 23)
	11:22 PM	11:22 PM	Iridium Flare	CHES:Iridium 41 Flares at mag. 1.1 (Azm 241 Alt 21)
11:31 PM	11:31 PM	Iridium Flare	CHES:Iridium 43 Flares at mag.-0.1 (Azm 243 Alt 17)	
21 Jul 2013	2:39 AM	2:39 AM	Sat Pass (ISS)	CHES:ISS Passes S to NE (Azm 74.9 Alt 9)
	3:02 AM	3:02 AM	Iridium Flare	CHES:Iridium 49 Flares at mag. 1.1 (Azm 298 Alt 14)
	4:12 AM	4:12 AM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 325.7 Alt 32)
	4:18 AM	4:18 AM	Jupiter	Jupiter rises
	4:21 AM	4:21 AM	Twilight	Astronomical Twilight begins
	4:22 AM	4:22 AM	Iridium Flare	CHES:Iridium 91 Flares at mag. 1.8 (Azm 264 Alt 46)
	4:48 AM	4:48 AM	Moon	Moonset
	6:05 AM	6:05 AM	Sun	Sunrise
	7:00 AM	7:00 AM	Diary	Pluto 1.0S of Moon Occn
	4:00 PM	4:00 PM	Diary	Moon at perigee
	6:50 PM	6:50 PM	Jupiter	Jupiter sets
	7:19 PM	7:19 PM	Moon	Moonrise
	8:22 PM	8:22 PM	Sun	Sunset
	10:07 PM	10:07 PM	Twilight	Astronomical Twilight ends
10:45 PM	10:45 PM	Iridium Flare	CHES:Iridium 64 Flares at mag.-3.1 (Azm 061 Alt 28)	
10:53 PM	10:53 PM	Iridium Flare	CHES:Iridium 74 Flares at mag. 0.8 (Azm 061 Alt 31)	
11:25 PM	11:25 PM	Iridium Flare	CHES:Iridium 40 Flares at mag.-1.9 (Azm 244 Alt 17)	
11:34 PM	11:34 PM	Iridium Flare	CHES:Iridium 39 Flares at mag.-1.5 (Azm 245 Alt 13)	
22 Jul 2013	2:56 AM	2:56 AM	Iridium Flare	CHES:Iridium 22 Flares at mag.-4.0 (Azm 298 Alt 15)
	3:24 AM	3:24 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 21.5 Alt 37)
	4:00 AM	4:00 AM	Diary	Mars 0.8N of Jupiter
	4:15 AM	4:15 AM	Jupiter	Jupiter rises
	4:16 AM	4:16 AM	Iridium Flare	CHES:Iridium 59 Flares at mag. 0.7 (Azm 265 Alt 45)
	4:22 AM	4:22 AM	Twilight	Astronomical Twilight begins
	5:27 AM	5:27 AM	Jup Sats	II.Sh.I
	5:58 AM	5:58 AM	Moon	Moonset
	6:06 AM	6:06 AM	Sun	Sunrise
	10:00 AM	10:00 AM	Diary	Venus 1.1N of Regulus
3:00 PM	3:00 PM	Diary	FULL MOON	
6:00 PM	6:00 PM	Meetings	NAS Regular Meeting at Chesapeake Public Library Major Hillard branch	

Norfolk Astronomical Society Astronomical Calendar

June 2013							July 2013							August 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	1	2	3	4	5	6	4	5	6	7	8	9	10	
2	3	4	5	6	7	8	7	8	9	10	11	12	13	11	12	13	14	15	16	17
9	10	11	12	13	14	15	14	15	16	17	18	19	20	18	19	20	21	22	23	24
16	17	18	19	20	21	22	21	22	23	24	25	26	27	25	26	27	28	29	30	31
23	24	25	26	27	28	29	28	29	30	31										
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Calendar

	Start	End	Category	Description
22 Jul 2013	6:47 PM	6:47 PM	Jupiter	Jupiter sets
	8:08 PM	8:08 PM	Moon	Moonrise
	8:22 PM	8:22 PM	Sun	Sunset
	10:06 PM	10:06 PM	Twilight	Astronomical Twilight ends
	10:39 PM	10:39 PM	Iridium Flare	CHES:Iridium 67 Flares at mag. 0.3 (Azm 062 Alt 28)
	11:18 PM	11:18 PM	Iridium Flare	CHES:Iridium 17 Flares at mag. 0.1 (Azm 246 Alt 17)
	11:19 PM	11:19 PM	Iridium Flare	CHES:Iridium 77 Flares at mag. 0.1 (Azm 245 Alt 17)
	11:28 PM	11:28 PM	Iridium Flare	CHES:Iridium 15 Flares at mag.-6.3 (Azm 246 Alt 13)
	11:35 PM	11:35 PM	Iridium Flare	CHES:Iridium 98 Flares at mag. 0.4 (Azm 246 Alt 11)
11:37 PM	11:37 PM	Iridium Flare	CHES:Iridium 81 Flares at mag. 0.5 (Azm 248 Alt 10)	
23 Jul 2013	2:37 AM	2:37 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 53.4 Alt 14)
	2:50 AM	2:50 AM	Iridium Flare	CHES:Iridium 25 Flares at mag.-1.6 (Azm 300 Alt 14)
	2:59 AM	2:59 AM	Iridium Flare	CHES:Iridium 45 Flares at mag. 0.0 (Azm 302 Alt 10)
	4:10 AM	4:10 AM	Iridium Flare	CHES:Iridium 95 Flares at mag.-3.3 (Azm 266 Alt 46)
	4:11 AM	4:11 AM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 334.1 Alt 16)
	4:12 AM	4:12 AM	Jupiter	Jupiter rises
	4:23 AM	4:23 AM	Twilight	Astronomical Twilight begins
	6:07 AM	6:07 AM	Sun	Sunrise
	7:10 AM	7:10 AM	Moon	Moonsset
	2:00 PM	2:00 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	6:44 PM	6:44 PM	Jupiter	Jupiter sets
	8:21 PM	8:21 PM	Sun	Sunset
	8:52 PM	8:52 PM	Moon	Moonrise
	10:05 PM	10:05 PM	Twilight	Astronomical Twilight ends
	10:33 PM	10:33 PM	Iridium Flare	CHES:Iridium 72 Flares at mag. 1.9 (Azm 064 Alt 28)
10:42 PM	10:42 PM	Iridium Flare	CHES:Iridium 75 Flares at mag. 0.2 (Azm 063 Alt 34)	
11:13 PM	11:13 PM	Iridium Flare	CHES:Iridium 82 Flares at mag. 1.7 (Azm 246 Alt 19)	
11:22 PM	11:22 PM	Iridium Flare	CHES:Iridium 41 Flares at mag.-1.8 (Azm 247 Alt 14)	
11:31 PM	11:31 PM	Iridium Flare	CHES:Iridium 43 Flares at mag.-6.1 (Azm 248 Alt 10)	
24 Jul 2013	2:44 AM	2:44 AM	Iridium Flare	CHES:Iridium 47 Flares at mag. 1.6 (Azm 301 Alt 13)
	2:47 AM	2:47 AM	Iridium Flare	CHES:Iridium 26 Flares at mag. 0.0 (Azm 302 Alt 12)
	2:52 AM	2:52 AM	Iridium Flare	CHES:Iridium 20 Flares at mag.-6.0 (Azm 303 Alt 10)
	3:22 AM	3:22 AM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 344.2 Alt 22)
	4:04 AM	4:04 AM	Iridium Flare	CHES:Iridium 30 Flares at mag.-5.8 (Azm 267 Alt 46)
	4:09 AM	4:09 AM	Jupiter	Jupiter rises
	4:24 AM	4:24 AM	Twilight	Astronomical Twilight begins
	6:08 AM	6:08 AM	Sun	Sunrise
	8:20 AM	8:20 AM	Moon	Moonsset
	6:41 PM	6:41 PM	Jupiter	Jupiter sets
8:20 PM	8:20 PM	Sun	Sunset	

Norfolk Astronomical Society Astronomical Calendar

June 2013							July 2013							August 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	1	2	3	4	5	6	4	5	6	7	8	9	10	
2	3	4	5	6	7	8	7	8	9	10	11	12	13	11	12	13	14	15	16	17
9	10	11	12	13	14	15	14	15	16	17	18	19	20	18	19	20	21	22	23	24
16	17	18	19	20	21	22	21	22	23	24	25	26	27	25	26	27	28	29	30	31
23	24	25	26	27	28	29	28	29	30	31										
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Calendar

	Start	End	Category	Description
24 Jul 2013	9:31 PM	9:31 PM	Moon	Moonrise
	10:03 PM	10:03 PM	Twilight	Astronomical Twilight ends
	10:36 PM	10:36 PM	Iridium Flare	CHES:Iridium 63 Flares at mag.-3.5 (Azm 065 Alt 33)
	11:00 PM	11:00 PM	Diary	Neptune 5.4S of Moon
	11:08 PM	11:08 PM	Iridium Flare	CHES:Iridium 38 Flares at mag. 1.6 (Azm 251 Alt 16)
	11:16 PM	11:16 PM	Iridium Flare	CHES:Iridium 42 Flares at mag. 0.2 (Azm 249 Alt 15)
	11:25 PM	11:25 PM	Iridium Flare	CHES:Iridium 40 Flares at mag.-3.9 (Azm 250 Alt 11)
25 Jul 2013	2:35 AM	2:35 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 27.6 Alt 16)
	2:46 AM	2:46 AM	Iridium Flare	CHES:Iridium 3 Flares at mag. 0.4 (Azm 304 Alt 11)
	3:58 AM	3:58 AM	Iridium Flare	CHES:Iridium 57 Flares at mag. 0.4 (Azm 267 Alt 47)
	4:06 AM	4:06 AM	Jupiter	Jupiter rises
	4:25 AM	4:25 AM	Twilight	Astronomical Twilight begins
	5:38 AM	5:38 AM	C/2011L4	Comet Pan-STARRS near M101
	6:08 AM	6:08 AM	Sun	Sunrise
	7:29 AM	7:29 AM	Iridium Flare	CHES:Iridium 13 Flares at mag.-7.8 (Azm 124 Alt 64)
	9:28 AM	9:28 AM	Moon	Moonsset
	6:38 PM	6:38 PM	Jupiter	Jupiter sets
	8:19 PM	8:19 PM	Sun	Sunset
	10:02 PM	10:02 PM	Twilight	Astronomical Twilight ends
	10:07 PM	10:07 PM	Moon	Moonrise
	10:30 PM	10:30 PM	Iridium Flare	CHES:Iridium 66 Flares at mag.-7.5 (Azm 067 Alt 34)
	11:09 PM	11:09 PM	Iridium Flare	CHES:Iridium 98 Flares at mag. 0.5 (Azm 250 Alt 16)
	11:10 PM	11:10 PM	Iridium Flare	CHES:Iridium 80 Flares at mag. 1.6 (Azm 251 Alt 16)
	11:15 PM	11:15 PM	Iridium Flare	CHES:Iridium 17 Flares at mag.-0.3 (Azm 252 Alt 12)
	11:19 PM	11:19 PM	Iridium Flare	CHES:Iridium 77 Flares at mag.-1.0 (Azm 252 Alt 12)
26 Jul 2013	1:47 AM	1:47 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 45.7 Alt 6)
	3:52 AM	3:52 AM	Iridium Flare	CHES:Iridium 60 Flares at mag. 1.6 (Azm 269 Alt 46)
	4:03 AM	4:03 AM	Jupiter	Jupiter rises
	4:17 AM	4:17 AM	Jup Sats	I.Tr.I
	4:26 AM	4:26 AM	Twilight	Astronomical Twilight begins
	6:09 AM	6:09 AM	Sun	Sunrise
	10:34 AM	10:34 AM	Moon	Moonsset
	10:55 AM	10:55 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	6:35 PM	6:35 PM	Jupiter	Jupiter sets
	8:19 PM	8:19 PM	Sun	Sunset
	10:01 PM	10:01 PM	Twilight	Astronomical Twilight ends
	10:24 PM	10:24 PM	Iridium Flare	CHES:Iridium 21 Flares at mag. 0.0 (Azm 068 Alt 34)
	10:41 PM	10:41 PM	Moon	Moonrise
	11:13 PM	11:13 PM	Iridium Flare	CHES:Iridium 82 Flares at mag. 0.8 (Azm 253 Alt 13)

Norfolk Astronomical Society Astronomical Calendar

June 2013							July 2013							August 2013							
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	
						1		1	2	3	4	5	6						1	2	3
2	3	4	5	6	7	8	7	8	9	10	11	12	13	4	5	6	7	8	9	10	
9	10	11	12	13	14	15	14	15	16	17	18	19	20	11	12	13	14	15	16	17	
16	17	18	19	20	21	22	21	22	23	24	25	26	27	18	19	20	21	22	23	24	
23	24	25	26	27	28	29	28	29	30	31				25	26	27	28	29	30	31	
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Calendar

	Start	End	Category	Description
27 Jul 2013	2:33 AM	2:33 AM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 5.3 Alt 13)
	3:50 AM	3:50 AM	Iridium Flare	CHES:Iridium 33 Flares at mag. 0.0 (Azm 269 Alt 43)
	3:55 AM	3:55 AM	Iridium Flare	CHES:Iridium 31 Flares at mag. 0.0 (Azm 270 Alt 38)
	4:00 AM	4:00 AM	Jupiter	Jupiter rises
	4:28 AM	4:28 AM	Twilight	Astronomical Twilight begins
	5:31 AM	5:31 AM	Iridium Flare	CHES:Iridium 35 Flares at mag. 0.4 (Azm 223 Alt 70)
	6:10 AM	6:10 AM	Sun	Sunrise
	11:37 AM	11:37 AM	Moon	Moonset
	5:00 PM	5:00 PM	Diary	Uranus 3.3S of Moon
	6:32 PM	6:32 PM	Jupiter	Jupiter sets
	8:18 PM	8:18 PM	Sun	Sunset
	10:00 PM	10:00 PM	Twilight	Astronomical Twilight ends
	10:27 PM	10:27 PM	Iridium Flare	CHES:Iridium 62 Flares at mag. 1.9 (Azm 069 Alt 41)
	11:05 PM	11:05 PM	Iridium Flare	CHES:Iridium 38 Flares at mag. 1.8 (Azm 257 Alt 12)
	11:07 PM	11:07 PM	Iridium Flare	CHES:Iridium 18 Flares at mag. 1.9 (Azm 255 Alt 13)
	11:16 PM	11:16 PM	Moon	Moonrise
	11:16 PM	11:16 PM	Iridium Flare	CHES:Iridium 42 Flares at mag. 0.5 (Azm 256 Alt 10)
28 Jul 2013	1:45 AM	1:45 AM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 31.0 Alt 8)
	3:57 AM	3:57 AM	Jupiter	Jupiter rises
	4:29 AM	4:29 AM	Twilight	Astronomical Twilight begins
	5:41 AM	5:41 AM	C/2011L4	Comet Pan-STARRS no longer circumpolar
	6:11 AM	6:11 AM	Sun	Sunrise
	12:38 PM	12:38 PM	Moon	Moonset
	6:11 PM	6:11 PM	Meteor Shower	S delta-Aquarids meteor peak (zhr=20)
	6:29 PM	6:29 PM	Jupiter	Jupiter sets
	8:17 PM	8:17 PM	Sun	Sunset
	9:59 PM	9:59 PM	Twilight	Astronomical Twilight ends
	10:21 PM	10:21 PM	Iridium Flare	CHES:Iridium 65 Flares at mag. 0.4 (Azm 070 Alt 41)
	11:10 PM	11:10 PM	Iridium Flare	CHES:Iridium 80 Flares at mag. 1.6 (Azm 257 Alt 10)
	11:51 PM	11:51 PM	Moon	Moonrise
29 Jul 2013	3:54 AM	3:54 AM	Jupiter	Jupiter rises
	4:30 AM	4:30 AM	Twilight	Astronomical Twilight begins
	5:26 AM	5:26 AM	Iridium Flare	CHES:Iridium 36 Flares at mag. 1.2 (Azm 238 Alt 62)
	6:11 AM	6:11 AM	Sun	Sunrise
	7:44 AM	7:44 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	8:50 AM	8:50 AM	Iridium Flare	CHES:Iridium 41 Flares at mag.-5.3 (Azm 095 Alt 39)
	1:36 PM	1:36 PM	Moon	Moonset
	2:00 PM	2:00 PM	Diary	LAST QUARTER
	2:17 PM	2:17 PM	Meteor Shower	alpha-Capricornids meteor peak (zhr= 8)
	6:26 PM	6:26 PM	Jupiter	Jupiter sets

