

Norfolk Astronomical Society



<http://norfolkastronomical.org>

June 2013

Monthly Sky Calendar
Prepared Specifically For
The Hampton Roads Area

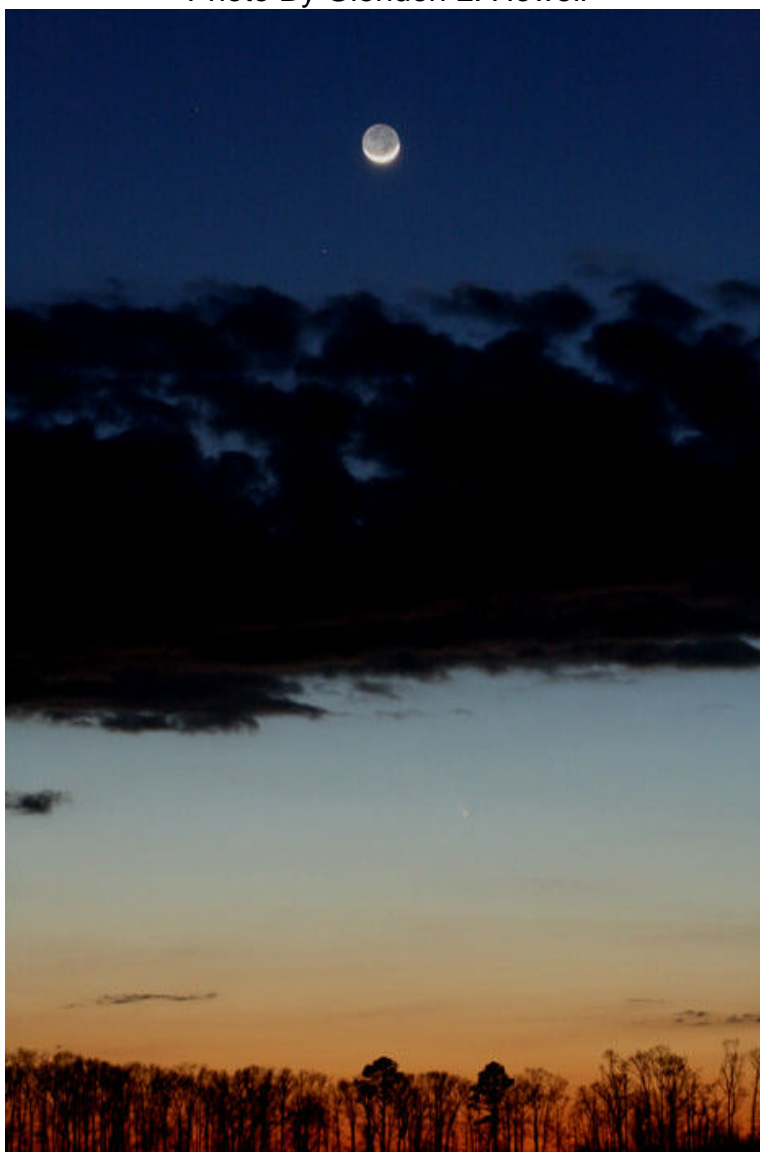
Upcoming Regular Meetings

DATE	Monday, June 17, 2013
TIME	6 - 8 PM EDT
WHERE	Chesapeake Public Library, Major Hillard branch Conf. Room
TOPIC	Observing Earth Satellites

DATE	Monday, July 22, 2013
TIME	6 - 8 PM EDT
WHERE	Chesapeake Public Library, Major Hillard branch Conf. Room
TOPIC	Apollo Moon Landings

Comet PanSTARRS

Photo By Glendon L. Howell



Glen took this image of Comet C/2001L4 PanSTARRS on March 13, 2013. The image is a 3.2 second exposure at 75mm f/5.6. The camera was a Canon Digital Rebel Xti set to ISO 1600, equipped with a Canon EFS 75-300mm zoom, on a tripod.

NAS Entertains 7th Graders at RRR Ranch
Glendon L. Howell



Photos courtesy of Kent Blackwell

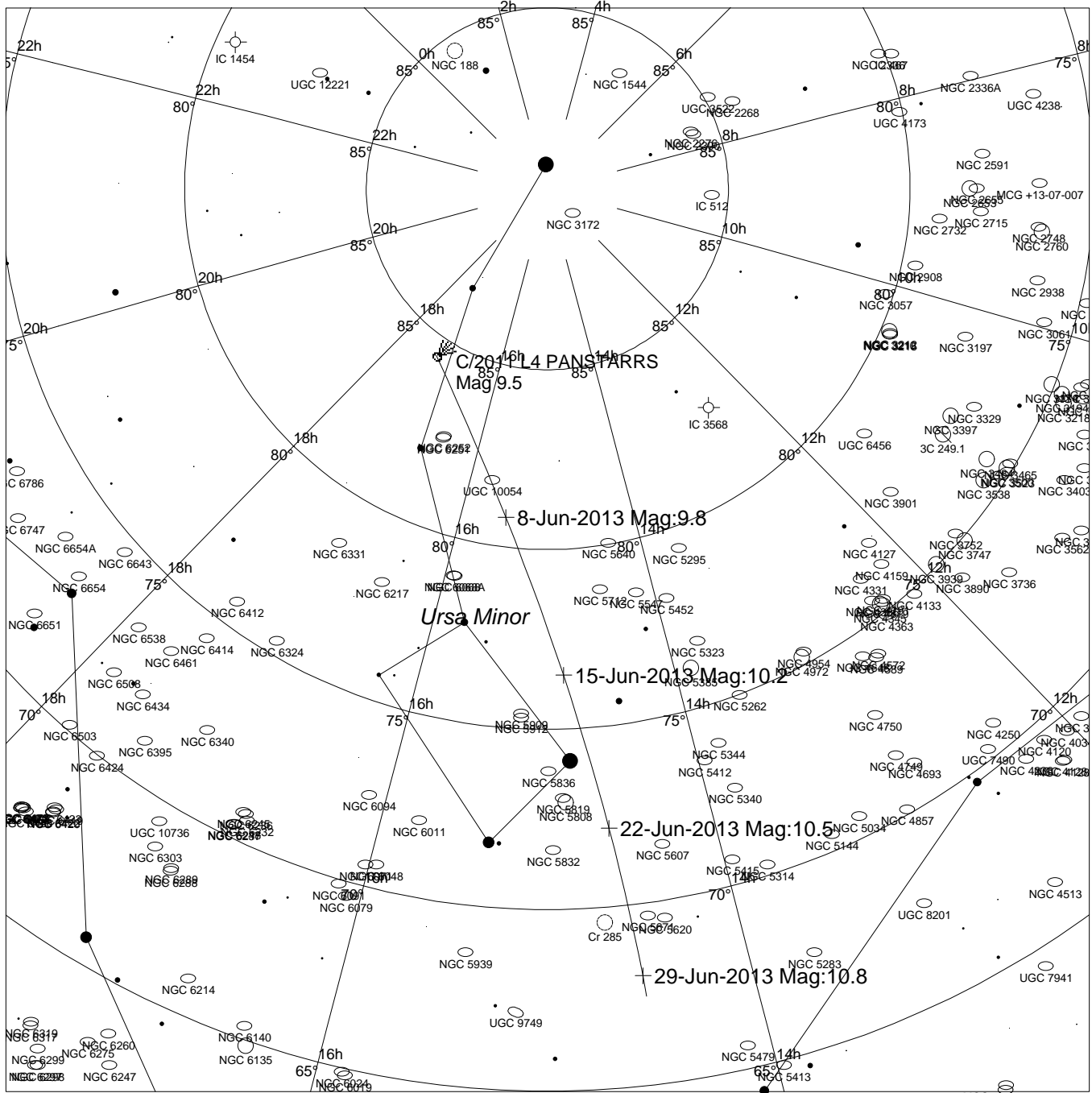
Members of the Norfolk Astronomical Society were once again invited to come to RRR Ranch in Chesapeake this year to entertain the 7th grade science class of John Gorman of Norfolk Christian Schools. Members Dennis Rowley, Glen Howell, and Kent Blackwell arrived Tuesday evening, May 14, eager to setup telescopes. However, right at sunset, clouds moved in, thwarting the event. After some discussion with John Gorman, we decided to reschedule for the next evening.

Dennis was unable to come due to work obligations Wednesday evening but Glen and Kent arrived and were awarded this night with clear skies. Kent setup a 10-inch Dobsonian and Glen setup his 3.5-inch Maksutov and his 20x80 binoculars. After an abbreviated Powerpoint talk, the 50 students moved out to the telescopes.

At 8:39 PM, we focused all attention to the northwest and witnessed the -6.3 magnitude flare of Iridium 76 as had been predicted on the Heavens-Above website. We continued with viewing of the planets Jupiter low in the west, and Saturn getting higher in the east. The craters, mountain ranges, and maria on the Moon were also targeted. Next we turned our attention to fainter targets, and were able to show the students views of the globular clusters M3 in Canes Venatici and M13 in Hercules.

After maybe an hour or so the kids left us, and Kent and I continued observing awhile longer. Among the additional objects we looked at were the globular cluster M53 in Coma Berenices, galaxy M64 in Coma Berenices, galaxy M104 in Virgo, galaxy M106 in Canes Venatici, and NGC6543 the Cat's Eye Planetary in Draco. We also observed comet C/2004L4 PanSTARRS in Cepheus and finally the double star Izar (epsilon Bootis) before clouds rolled in about 10 PM. We look forward to doing this again next year.

Comet C/2011L4 PanSTARRS in June



STARS		SYMBOLS	
● <2	● 4.5	☉ Globular Cluster	☉ Planetary Nebula
● 2.5	● 5	☉ Asteroid	☉ Quasar
● 3	● 5.5	☉ Galaxy	☉ Other Object
● 3.5	● >6	☉ Open Cluster	
● 4		☉ Bright Nebula	

Having passed near Polaris May 27, the comet continues to dim as it moves through Ursa Minor this month. It passes very close to Kochab about June 18. The comet may be as much as 2 magnitudes brighter than these predictions. Chart created by SkyMap 3.0

Local Time: 00:00:00 1-Jun-2013 UTC: 03:59:59 1-Jun-2013 Sidereal Time: 15:34:06
 Location: 36° 49' 48" N 76° 16' 48" W RA: 15h00m00s Dec: +80° 00' Field: 30.0° Julian Day: 2456444.6667

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
1 Jun 2013	12:05 AM	12:05 AM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 14.4 Alt 14)
	12:53 AM	12:53 AM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 359.3 Alt 13)
	1:35 AM	1:35 AM	Moon	Moonrise
	4:03 AM	4:03 AM	Twilight	Astronomical Twilight begins
	4:37 AM	4:37 AM	Iridium Flare	CHES:Iridium 74 Flares at mag.-8.4 (Azm 257 Alt 60)
	5:51 AM	5:51 AM	Sun	Sunrise
	6:46 AM	6:46 AM	Jupiter	Jupiter rises
	1:57 PM	1:57 PM	Moon	Moonset
	8:19 PM	8:19 PM	Sun	Sunset
	9:17 PM	9:17 PM	Jupiter	Jupiter sets
10:07 PM	10:07 PM	Twilight	Astronomical Twilight ends	
11:24 PM	11:24 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)	
2 Jun 2013	2:07 AM	2:07 AM	Moon	Moonrise
	4:02 AM	4:02 AM	Twilight	Astronomical Twilight begins
	4:56 AM	4:56 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 30.0 Alt 22)
	5:50 AM	5:50 AM	Sun	Sunrise
	6:43 AM	6:43 AM	Jupiter	Jupiter rises
	2:57 PM	2:57 PM	Moon	Moonset
	8:20 PM	8:20 PM	Sun	Sunset
	9:14 PM	9:14 PM	Jupiter	Jupiter sets
	10:08 PM	10:08 PM	Twilight	Astronomical Twilight ends
	11:15 PM	11:15 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 9.6 Alt 25)
3 Jun 2013	1:00 AM	1:00 AM	Diary	Uranus 3.7S of Moon
	2:40 AM	2:40 AM	Moon	Moonrise
	4:01 AM	4:01 AM	Twilight	Astronomical Twilight begins
	4:07 AM	4:07 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 25.6 Alt 15)
	4:29 AM	4:29 AM	Iridium Flare	CHES:Iridium 65 Flares at mag.-0.2 (Azm 261 Alt 54)
	4:45 AM	4:45 AM	Lunar Occult	Moon occults 5.9 mag. star 103(R) 62 Psc
	5:20 AM	5:20 AM	Lunar Occult	Moon occults 4.4 mag. star 105(R) delta Psc
	5:50 AM	5:50 AM	Sun	Sunrise
	6:40 AM	6:40 AM	Jupiter	Jupiter rises
	3:56 PM	3:56 PM	Moon	Moonset
	8:20 PM	8:20 PM	Sun	Sunset
	9:11 PM	9:11 PM	Jupiter	Jupiter sets
10:09 PM	10:09 PM	Twilight	Astronomical Twilight ends	
10:25 PM	10:25 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 321.3 Alt 64)	
4 Jun 2013	3:13 AM	3:13 AM	Moon	Moonrise
	4:01 AM	4:01 AM	Twilight	Astronomical Twilight begins
	4:23 AM	4:23 AM	Iridium Flare	CHES:Iridium 68 Flares at mag.-8.3 (Azm 262 Alt 56)

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
4 Jun 2013	4:55 AM	4:55 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azim 37.7 Alt 54)
	5:50 AM	5:50 AM	Sun	Sunrise
	6:37 AM	6:37 AM	Jupiter	Jupiter rises
	4:53 PM	4:53 PM	Moon	Moonset
	8:13 PM	8:13 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	8:21 PM	8:21 PM	Sun	Sunset
	9:08 PM	9:08 PM	Jupiter	Jupiter sets
	9:36 PM	9:36 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azim 136.4 Alt 65)
	10:10 PM	10:10 PM	Twilight	Astronomical Twilight ends
	11:13 PM	11:13 PM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azim 333.3 Alt 16)
	11:21 PM	11:21 PM	Iridium Flare	CHES:Iridium 4 Flares at mag.-4.0 (Azim 238 Alt 23)
	11:26 PM	11:26 PM	Iridium Flare	CHES:Iridium 51 Flares at mag.-0.7 (Azim 239 Alt 21)
11:26 PM	11:26 PM	Iridium Flare	CHES:Iridium 7 Flares at mag.-0.3 (Azim 239 Alt 21)	
5 Jun 2013	3:48 AM	3:48 AM	Moon	Moonrise
	4:00 AM	4:00 AM	Twilight	Astronomical Twilight begins
	4:06 AM	4:06 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azim 33.7 Alt 31)
	5:49 AM	5:49 AM	Sun	Sunrise
	6:34 AM	6:34 AM	Jupiter	Jupiter rises
	5:50 PM	5:50 PM	Moon	Moonset
	8:22 PM	8:22 PM	Sun	Sunset
	8:47 PM	8:47 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azim 132.8 Alt 32)
	9:05 PM	9:05 PM	Jupiter	Jupiter sets
	10:11 PM	10:11 PM	Twilight	Astronomical Twilight ends
10:24 PM	10:24 PM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azim 328.8 Alt 24)	
11:20 PM	11:20 PM	Iridium Flare	CHES:Iridium 37 Flares at mag.-5.0 (Azim 240 Alt 22)	
6 Jun 2013	3:17 AM	3:17 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azim 29.2 Alt 20)
	4:00 AM	4:00 AM	Twilight	Astronomical Twilight begins
	4:27 AM	4:27 AM	Moon	Moonrise
	4:54 AM	4:54 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azim 225.0 Alt 45)
	5:49 AM	5:49 AM	Sun	Sunrise
	6:31 AM	6:31 AM	Jupiter	Jupiter rises
	6:45 PM	6:45 PM	Moon	Moonset
	8:22 PM	8:22 PM	Sun	Sunset
	9:03 PM	9:03 PM	Jupiter	Jupiter sets
	9:34 PM	9:34 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azim 324.3 Alt 39)
	10:11 PM	10:11 PM	Twilight	Astronomical Twilight ends
10:38 PM	10:38 PM	Iridium Flare	CHES:Iridium 96 Flares at mag.-6.3 (Azim 259 Alt 17)	
11:14 PM	11:14 PM	Iridium Flare	CHES:Iridium 34 Flares at mag.-6.0 (Azim 242 Alt 23)	
11:16 PM	11:16 PM	Iridium Flare	CHES:Iridium 36 Flares at mag.-2.9 (Azim 242 Alt 21)	

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
7 Jun 2013	4:00 AM	4:00 AM	Twilight	Astronomical Twilight begins
	4:05 AM	4:05 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 41.8 Alt 89)
	5:08 AM	5:08 AM	Moon	Moonrise
	5:49 AM	5:49 AM	Sun	Sunrise
	6:28 AM	6:28 AM	Jupiter	Jupiter rises
	7:26 AM	7:26 AM	Meteor Shower	Arietids (day) meteor peak (zhr=60)
	10:00 AM	10:00 AM	Diary	Mars 1.8N of Moon
	2:00 PM	2:00 PM	Diary	Neptune stationary
	5:00 PM	5:00 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	7:00 PM	7:00 PM	Meetings	NAS Observing Session (Gates Co., NC)
	7:37 PM	7:37 PM	Moon	Moonset
	8:00 PM	8:00 PM	Diary	Aldebaran 3.4S of Moon
	8:23 PM	8:23 PM	Sun	Sunset
8:42 PM	8:42 PM	Iridium Flare	CHES:Iridium 60 Flares at mag.-6.3 (Azm 341 Alt 25)	
8:45 PM	8:45 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 319.7 Alt 74)	
9:00 PM	9:00 PM	Jupiter	Jupiter sets	
10:12 PM	10:12 PM	Twilight	Astronomical Twilight ends	
11:08 PM	11:08 PM	Iridium Flare	CHES:Iridium 5 Flares at mag.-1.0 (Azm 243 Alt 24)	
8 Jun 2013	3:16 AM	3:16 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 37.1 Alt 47)
	3:59 AM	3:59 AM	Twilight	Astronomical Twilight begins
	5:49 AM	5:49 AM	Sun	Sunrise
	5:53 AM	5:53 AM	Moon	Moonrise
	6:25 AM	6:25 AM	Jupiter	Jupiter rises
	1:00 PM	1:00 PM	Diary	NEW MOON
	8:23 PM	8:23 PM	Sun	Sunset
	8:26 PM	8:26 PM	Moon	Moonset
	8:35 PM	8:35 PM	Iridium Flare	CHES:Iridium 29 Flares at mag.-6.4 (Azm 340 Alt 27)
	8:57 PM	8:57 PM	Jupiter	Jupiter sets
9:33 PM	9:33 PM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 332.5 Alt 18)	
10:13 PM	10:13 PM	Twilight	Astronomical Twilight ends	
9 Jun 2013	2:26 AM	2:26 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 359.3 Alt 23)
	3:59 AM	3:59 AM	Twilight	Astronomical Twilight begins
	4:01 AM	4:01 AM	Iridium Flare	CHES:Iridium 74 Flares at mag.-5.6 (Azm 270 Alt 49)
	4:02 AM	4:02 AM	Iridium Flare	CHES:Iridium 62 Flares at mag.-1.3 (Azm 270 Alt 47)
	5:00 AM	5:00 AM	Diary	Jupiter 3.0N of Moon
	5:49 AM	5:49 AM	Sun	Sunrise
	6:22 AM	6:22 AM	Jupiter	Jupiter rises
	6:42 AM	6:42 AM	Moon	Moonrise
	7:33 AM	7:33 AM	Iridium Flare	CHES:Iridium 32 Flares at mag.-5.6 (Azm 112 Alt 64)
9:38 AM	9:38 AM	Meteor Shower	zeta-Perseids (day) meteor peak (zhr=40)	

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
9 Jun 2013	3:00 PM	3:00 PM	Diary	Moon at apogee
	8:24 PM	8:24 PM	Sun	Sunset
	8:29 PM	8:29 PM	Iridium Flare	CHES:Iridium 32 Flares at mag.-6.5 (Azm 339 Alt 28)
	8:30 PM	8:30 PM	Iridium Flare	CHES:Iridium 28 Flares at mag.-4.9 (Azm 339 Alt 28)
	8:44 PM	8:44 PM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 327.6 Alt 27)
	8:54 PM	8:54 PM	Jupiter	Jupiter sets
	9:12 PM	9:12 PM	Moon	Moonset
	10:14 PM	10:14 PM	Twilight	Astronomical Twilight ends
	11:05 PM	11:05 PM	Iridium Flare	CHES:Iridium 19 Flares at mag.-3.1 (Azm 248 Alt 20)
10 Jun 2013	1:37 AM	1:37 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 6.2 Alt 17)
	3:56 AM	3:56 AM	Iridium Flare	CHES:Iridium 65 Flares at mag.-8.1 (Azm 271 Alt 48)
	3:59 AM	3:59 AM	Twilight	Astronomical Twilight begins
	5:49 AM	5:49 AM	Sun	Sunrise
	6:19 AM	6:19 AM	Jupiter	Jupiter rises
	7:00 AM	7:00 AM	Diary	Venus 5.2N of Moon
	7:33 AM	7:33 AM	Moon	Moonrise
	1:51 PM	1:51 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	6:00 PM	6:00 PM	Diary	Mercury 5.8N of Moon
	8:24 PM	8:24 PM	Sun	Sunset
	8:51 PM	8:51 PM	Jupiter	Jupiter sets
	9:53 PM	9:53 PM	Moon	Moonset
	10:14 PM	10:14 PM	Twilight	Astronomical Twilight ends
	10:59 PM	10:59 PM	Iridium Flare	CHES:Iridium 97 Flares at mag.-6.5 (Azm 249 Alt 21)
11 Jun 2013	3:50 AM	3:50 AM	Iridium Flare	CHES:Iridium 68 Flares at mag.-0.1 (Azm 273 Alt 49)
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins
	5:49 AM	5:49 AM	Sun	Sunrise
	6:16 AM	6:16 AM	Jupiter	Jupiter rises
	8:26 AM	8:26 AM	Moon	Moonrise
	6:12 PM	6:12 PM	Iridium Flare	CHES:Iridium 49 Flares at mag.-5.3 (Azm 302 Alt 49)
	8:17 PM	8:17 PM	Iridium Flare	CHES:Iridium 55 Flares at mag.-6.6 (Azm 337 Alt 31)
	8:25 PM	8:25 PM	Sun	Sunset
	8:48 PM	8:48 PM	Jupiter	Jupiter sets
	10:15 PM	10:15 PM	Twilight	Astronomical Twilight ends
	10:31 PM	10:31 PM	Moon	Moonset
	10:53 PM	10:53 PM	Iridium Flare	CHES:Iridium 51 Flares at mag.-1.2 (Azm 251 Alt 22)
	10:53 PM	10:53 PM	Iridium Flare	CHES:Iridium 7 Flares at mag.-1.6 (Azm 251 Alt 22)
12 Jun 2013	1:33 AM	1:33 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 323.7 Alt 10)
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins
	5:49 AM	5:49 AM	Sun	Sunrise

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
12 Jun 2013	6:13 AM	6:13 AM	Jupiter	Jupiter rises
	9:21 AM	9:21 AM	Moon	Moonrise
	12:00 PM	12:00 PM	Diary	Mercury greatest elong E(24)
	8:25 PM	8:25 PM	Sun	Sunset
	8:45 PM	8:45 PM	Jupiter	Jupiter sets
	10:16 PM	10:16 PM	Twilight	Astronomical Twilight ends
	10:56 PM	10:56 PM	Iridium Flare	CHES:Iridium 61 Flares at mag.-1.4 (Azm 254 Alt 18)
	11:06 PM	11:06 PM	Moon	Moonset
13 Jun 2013	12:45 AM	12:45 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 346.0 Alt 16)
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins
	5:49 AM	5:49 AM	Sun	Sunrise
	6:10 AM	6:10 AM	Jupiter	Jupiter rises
	8:54 AM	8:54 AM	Iridium Flare	CHES:Iridium 51 Flares at mag.-4.1 (Azm 087 Alt 38)
	10:17 AM	10:17 AM	Moon	Moonrise
	10:40 AM	10:40 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	8:26 PM	8:26 PM	Sun	Sunset
	8:42 PM	8:42 PM	Jupiter	Jupiter sets
	9:04 PM	9:04 PM	Lunar Occult	Moon occults 5.5 mag. double star ZC1397(m) omega Leo
	9:06 PM	9:06 PM	Lunar Occult	Moon grazes 5.5 mag. double star ZC1397(Gr) omega Leo
	10:16 PM	10:16 PM	Twilight	Astronomical Twilight ends
	10:50 PM	10:50 PM	Iridium Flare	CHES:Iridium 35 Flares at mag.-4.6 (Azm 256 Alt 18)
11:39 PM	11:39 PM	Moon	Moonset	
11:58 PM	11:58 PM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 19.9 Alt 17)	
14 Jun 2013	3:41 AM	3:41 AM	Iridium Flare	CHES:Iridium 67 Flares at mag.-0.9 (Azm 277 Alt 40)
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins
	5:49 AM	5:49 AM	Sun	Sunrise
	6:07 AM	6:07 AM	Jupiter	Jupiter rises
	9:00 AM	9:00 AM	Diary	Mars 5.7N of Aldebaran
	11:14 AM	11:14 AM	Moon	Moonrise
	1:00 PM	1:00 PM	Diary	Regulus 5.5N of Moon
	8:26 PM	8:26 PM	Sun	Sunset
	8:39 PM	8:39 PM	Jupiter	Jupiter sets
	10:17 PM	10:17 PM	Twilight	Astronomical Twilight ends
10:44 PM	10:44 PM	Iridium Flare	CHES:Iridium 6 Flares at mag.-3.8 (Azm 257 Alt 19)	
10:47 PM	10:47 PM	Iridium Flare	CHES:Iridium 4 Flares at mag.-4.6 (Azm 258 Alt 17)	
15 Jun 2013	12:10 AM	12:10 AM	Moon	Moonset
	12:43 AM	12:43 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 316.7 Alt 12)
	3:34 AM	3:34 AM	Iridium Flare	CHES:Iridium 72 Flares at mag.-7.9 (Azm 278 Alt 41)
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
15 Jun 2013	5:49 AM	5:49 AM	Sun	Sunrise
	6:04 AM	6:04 AM	Jupiter	Jupiter rises
	12:11 PM	12:11 PM	Moon	Moonrise
	8:27 PM	8:27 PM	Sun	Sunset
	8:36 PM	8:36 PM	Jupiter	Jupiter sets
	10:17 PM	10:17 PM	Twilight	Astronomical Twilight ends
	10:48 PM	10:48 PM	Iridium Flare	CHES:Iridium 37 Flares at mag.-1.0 (Azm 260 Alt 16)
	11:55 PM	11:55 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 344.4 Alt 23)
16 Jun 2013	12:42 AM	12:42 AM	Moon	Moonset
	3:28 AM	3:28 AM	Iridium Flare	CHES:Iridium 62 Flares at mag.-0.8 (Azm 279 Alt 41)
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins
	5:49 AM	5:49 AM	Sun	Sunrise
	6:01 AM	6:01 AM	Jupiter	Jupiter rises
	7:29 AM	7:29 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	1:10 PM	1:10 PM	Moon	Moonrise
	2:00 PM	2:00 PM	Diary	FIRST QUARTER
	8:27 PM	8:27 PM	Sun	Sunset
	8:33 PM	8:33 PM	Jupiter	Jupiter sets
	10:18 PM	10:18 PM	Twilight	Astronomical Twilight ends
	10:38 PM	10:38 PM	Iridium Flare	CHES:Iridium 36 Flares at mag.-4.7 (Azm 262 Alt 17)
	10:42 PM	10:42 PM	Iridium Flare	CHES:Iridium 34 Flares at mag.-4.3 (Azm 262 Alt 16)
11:07 PM	11:07 PM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 30.4 Alt 22)	
17 Jun 2013	12:40 AM	12:40 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 298.6 Alt 6)
	1:14 AM	1:14 AM	Moon	Moonset
	3:24 AM	3:24 AM	Iridium Flare	CHES:Iridium 74 Flares at mag.-1.9 (Azm 280 Alt 40)
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins
	5:08 AM	5:08 AM	Iridium Flare	CHES:Iridium 20 Flares at mag.-2.3 (Azm 249 Alt 66)
	5:49 AM	5:49 AM	Sun	Sunrise
	5:58 AM	5:58 AM	Jupiter	Jupiter rises
	2:12 PM	2:12 PM	Moon	Moonrise
	6:00 PM	6:00 PM	Meetings	NAS Regular Meeting at Chesapeake Public Library Major Hillard branch
	8:27 PM	8:27 PM	Sun	Sunset
	8:31 PM	8:31 PM	Jupiter	Jupiter sets
	10:18 PM	10:18 PM	Twilight	Astronomical Twilight ends
	10:18 PM	10:18 PM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 25.8 Alt 15)
	10:36 PM	10:36 PM	Iridium Flare	CHES:Iridium 5 Flares at mag.-3.7 (Azm 263 Alt 17)
11:53 PM	11:53 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 306.0 Alt 19)	
18 Jun 2013	1:48 AM	1:48 AM	Moon	Moonset
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
18 Jun 2013	5:02 AM	5:02 AM	Iridium Flare	CHES:Iridium 3 Flares at mag.-0.4 (Azm 248 Alt 68)
	5:49 AM	5:49 AM	Sun	Sunrise
	5:55 AM	5:55 AM	Jupiter	Jupiter rises
	3:16 PM	3:16 PM	Moon	Moonrise
	5:00 PM	5:00 PM	Diary	Spica 0.2S of Moon Occn
	8:28 PM	8:28 PM	Sun	Sunset
	8:28 PM	8:28 PM	Jupiter	Jupiter sets
	10:19 PM	10:19 PM	Twilight	Astronomical Twilight ends
	10:30 PM	10:30 PM	Iridium Flare	CHES:Iridium 8 Flares at mag.-0.8 (Azm 265 Alt 17)
	11:05 PM	11:05 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 354.6 Alt 46)
19 Jun 2013	2:26 AM	2:26 AM	Moon	Moonset
	3:19 AM	3:19 AM	Iridium Flare	CHES:Iridium 70 Flares at mag.-7.6 (Azm 283 Alt 35)
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins
	4:18 AM	4:18 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	5:19 AM	5:19 AM	C/2011L4	Comet Pan-STARRS near Kochab
	5:49 AM	5:49 AM	Sun	Sunrise
	5:52 AM	5:52 AM	Jupiter	Jupiter rises
	12:00 PM	12:00 PM	Diary	Saturn 3.5N of Moon
	1:00 PM	1:00 PM	Diary	Jupiter at conjunction
	4:22 PM	4:22 PM	Moon	Moonrise
	5:32 PM	5:32 PM	Iridium Flare	CHES:Iridium 22 Flares at mag.-6.1 (Azm 286 Alt 48)
	8:25 PM	8:25 PM	Jupiter	Jupiter sets
	8:28 PM	8:28 PM	Sun	Sunset
	10:16 PM	10:16 PM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 33.8 Alt 31)
	10:19 PM	10:19 PM	Twilight	Astronomical Twilight ends
	10:33 PM	10:33 PM	Iridium Flare	CHES:Iridium 19 Flares at mag.-6.0 (Azm 268 Alt 14)
	10:37 PM	10:37 PM	Iridium Flare	CHES:Iridium 36 Flares at mag.-1.8 (Azm 269 Alt 12)
	11:50 PM	11:50 PM	Sat Pass (ISS)	CHES:ISS Passes NW to S (Azm 282.5 Alt 10)
20 Jun 2013	3:10 AM	3:10 AM	Moon	Moonset
	3:13 AM	3:13 AM	Iridium Flare	CHES:Iridium 64 Flares at mag.-2.2 (Azm 284 Alt 35)
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins
	5:49 AM	5:49 AM	Sun	Sunrise
	5:49 AM	5:49 AM	Jupiter	Jupiter rises
	5:30 PM	5:30 PM	Moon	Moonrise
	8:00 PM	8:00 PM	Diary	Mercury 2.0S of Venus
	8:22 PM	8:22 PM	Jupiter	Jupiter sets
	8:28 PM	8:28 PM	Sun	Sunset
	9:27 PM	9:27 PM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 29.2 Alt 20)
	10:19 PM	10:19 PM	Twilight	Astronomical Twilight ends
	10:27 PM	10:27 PM	Iridium Flare	CHES:Iridium 97 Flares at mag.-1.6 (Azm 270 Alt 15)

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
20 Jun 2013	10:36 PM	10:36 PM	Iridium Flare	CHES:Iridium 5 Flares at mag.-1.8 (Azm 271 Alt 12)
	11:03 PM	11:03 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 271.5 Alt 33)
	11:23 PM	11:23 PM	Lunar Occult	Moon occults 5.5 mag. double star ZC2233(D) 41 Lib
21 Jun 2013	1:00 AM	1:00 AM	Diary	Solstice
	1:29 AM	1:29 AM	Lunar Occult	Moon occults 4.8 mag. double star ZC2241(D) kappa Lib
	3:58 AM	3:58 AM	Twilight	Astronomical Twilight begins
	4:00 AM	4:00 AM	Moon	Moonset
	5:46 AM	5:46 AM	Jupiter	Jupiter rises
	5:50 AM	5:50 AM	Sun	Sunrise
	5:20 PM	5:20 PM	Iridium Flare	CHES:Iridium 47 Flares at mag.-5.8 (Azm 281 Alt 46)
	6:38 PM	6:38 PM	Moon	Moonrise
	8:19 PM	8:19 PM	Jupiter	Jupiter sets
	8:28 PM	8:28 PM	Sun	Sunset
	10:15 PM	10:15 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 179.1 Alt 89)
10:19 PM	10:19 PM	Twilight	Astronomical Twilight ends	
10:30 PM	10:30 PM	Iridium Flare	CHES:Iridium 8 Flares at mag.-5.7 (Azm 273 Alt 12)	
22 Jun 2013	1:00 AM	1:00 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	3:00 AM	3:00 AM	Diary	Venus 5.2S of Pollux
	3:10 AM	3:10 AM	Iridium Flare	CHES:Iridium 75 Flares at mag.-1.0 (Azm 287 Alt 29)
	3:59 AM	3:59 AM	Twilight	Astronomical Twilight begins
	4:58 AM	4:58 AM	Moon	Moonset
	5:43 AM	5:43 AM	Jupiter	Jupiter rises
	5:50 AM	5:50 AM	Sun	Sunrise
	7:43 PM	7:43 PM	Moon	Moonrise
	8:16 PM	8:16 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
9:25 PM	9:25 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 36.8 Alt 47)	
10:20 PM	10:20 PM	Twilight	Astronomical Twilight ends	
10:24 PM	10:24 PM	Iridium Flare	CHES:Iridium 61 Flares at mag.-1.3 (Azm 274 Alt 12)	
23 Jun 2013	3:04 AM	3:04 AM	Iridium Flare	CHES:Iridium 63 Flares at mag.-7.3 (Azm 288 Alt 29)
	3:59 AM	3:59 AM	Twilight	Astronomical Twilight begins
	4:41 AM	4:41 AM	Iridium Flare	CHES:Iridium 45 Flares at mag.-1.0 (Azm 261 Alt 58)
	5:41 AM	5:41 AM	Jupiter	Jupiter rises
	5:50 AM	5:50 AM	Sun	Sunrise
	6:03 AM	6:03 AM	Moon	Moonset
	7:00 AM	7:00 AM	Diary	Moon at perigee
	8:00 AM	8:00 AM	Diary	FULL MOON
	8:13 PM	8:13 PM	Jupiter	Jupiter sets
8:29 PM	8:29 PM	Sun	Sunset	

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
23 Jun 2013	8:36 PM	8:36 PM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 32.9 Alt 27)
	8:42 PM	8:42 PM	Moon	Moonrise
	9:00 PM	9:00 PM	Diary	Pluto 0.9S of Moon Occn
	9:28 PM	9:28 PM	Iridium Flare	CHES:Iridium 8 Flares at mag.-2.0 (Azm 344 Alt 15)
	10:13 PM	10:13 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 228.0 Alt 27)
	10:20 PM	10:20 PM	Twilight	Astronomical Twilight ends
24 Jun 2013	2:57 AM	2:57 AM	Iridium Flare	CHES:Iridium 66 Flares at mag.-1.4 (Azm 290 Alt 29)
	3:59 AM	3:59 AM	Twilight	Astronomical Twilight begins
	4:35 AM	4:35 AM	Iridium Flare	CHES:Iridium 20 Flares at mag.-8.4 (Azm 262 Alt 58)
	5:38 AM	5:38 AM	Jupiter	Jupiter rises
	5:50 AM	5:50 AM	Sun	Sunrise
	7:12 AM	7:12 AM	Moon	Moonset
	8:10 PM	8:10 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
	9:21 PM	9:21 PM	Iridium Flare	CHES:Iridium 61 Flares at mag.-5.7 (Azm 343 Alt 16)
	9:23 PM	9:23 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 224.5 Alt 53)
	9:33 PM	9:33 PM	Moon	Moonrise
9:56 PM	9:56 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)	
10:20 PM	10:20 PM	Twilight	Astronomical Twilight ends	
11:29 PM	11:29 PM	Iridium Flare	CHES:Iridium 53 Flares at mag.-0.5 (Azm 234 Alt 28)	
25 Jun 2013	4:00 AM	4:00 AM	Twilight	Astronomical Twilight begins
	5:35 AM	5:35 AM	Jupiter	Jupiter rises
	5:51 AM	5:51 AM	Sun	Sunrise
	8:23 AM	8:23 AM	Moon	Moonset
	8:07 PM	8:07 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
	9:00 PM	9:00 PM	Diary	Mercury stationary
	9:15 PM	9:15 PM	Iridium Flare	CHES:Iridium 35 Flares at mag.-0.6 (Azm 342 Alt 17)
	10:19 PM	10:19 PM	Moon	Moonrise
	10:20 PM	10:20 PM	Twilight	Astronomical Twilight ends
	11:31 PM	11:31 PM	Iridium Flare	CHES:Iridium 12 Flares at mag.-0.3 (Azm 237 Alt 22)
11:32 PM	11:32 PM	Iridium Flare	CHES:Iridium 16 Flares at mag.-0.3 (Azm 237 Alt 23)	
26 Jun 2013	2:54 AM	2:54 AM	Iridium Flare	CHES:Iridium 62 Flares at mag.-5.5 (Azm 293 Alt 24)
	4:00 AM	4:00 AM	Twilight	Astronomical Twilight begins
	5:32 AM	5:32 AM	Jupiter	Jupiter rises
	5:51 AM	5:51 AM	Sun	Sunrise
	9:34 AM	9:34 AM	Moon	Moonset
	8:04 PM	8:04 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
26 Jun 2013	9:21 PM	9:21 PM	Sat Pass (ISS)	CHES:ISS Passes NW to S (Azm 230.4 Alt 17)
	10:20 PM	10:20 PM	Twilight	Astronomical Twilight ends
	10:59 PM	10:59 PM	Moon	Moonrise
	11:26 PM	11:26 PM	Iridium Flare	CHES:Iridium 86 Flares at mag.-1.8 (Azm 239 Alt 22)
27 Jun 2013	2:48 AM	2:48 AM	Iridium Flare	CHES:Iridium 65 Flares at mag.-1.4 (Azm 294 Alt 24)
	4:01 AM	4:01 AM	Twilight	Astronomical Twilight begins
	5:29 AM	5:29 AM	Jupiter	Jupiter rises
	5:51 AM	5:51 AM	Sun	Sunrise
	10:41 AM	10:41 AM	Moon	Moonsset
	2:00 PM	2:00 PM	Diary	Neptune 5.5S of Moon
	6:45 PM	6:45 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	8:01 PM	8:01 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
	8:32 PM	8:32 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 227.2 Alt 32)
	10:20 PM	10:20 PM	Twilight	Astronomical Twilight ends
	11:19 PM	11:19 PM	Iridium Flare	CHES:Iridium 52 Flares at mag.-3.6 (Azm 240 Alt 24)
11:35 PM	11:35 PM	Moon	Moonrise	
28 Jun 2013	2:51 AM	2:51 AM	Iridium Flare	CHES:Iridium 21 Flares at mag.-1.2 (Azm 297 Alt 19)
	4:01 AM	4:01 AM	Twilight	Astronomical Twilight begins
	5:26 AM	5:26 AM	Jupiter	Jupiter rises
	5:52 AM	5:52 AM	Sun	Sunrise
	6:09 AM	6:09 AM	Meteor Shower	beta-Taurids (day) meteor peak (zhr=25)
	7:50 AM	7:50 AM	Iridium Flare	CHES:Iridium 61 Flares at mag.-4.6 (Azm 106 Alt 61)
	11:46 AM	11:46 AM	Moon	Moonsset
	7:58 PM	7:58 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
	10:20 PM	10:20 PM	Twilight	Astronomical Twilight ends
11:13 PM	11:13 PM	Iridium Flare	CHES:Iridium 10 Flares at mag.-1.3 (Azm 242 Alt 25)	
29 Jun 2013	12:09 AM	12:09 AM	Moon	Moonrise
	2:45 AM	2:45 AM	Iridium Flare	CHES:Iridium 70 Flares at mag.-4.6 (Azm 298 Alt 20)
	4:02 AM	4:02 AM	Twilight	Astronomical Twilight begins
	4:13 AM	4:13 AM	Iridium Flare	CHES:Iridium 94 Flares at mag.-6.5 (Azm 268 Alt 51)
	5:23 AM	5:23 AM	Jupiter	Jupiter rises
	5:52 AM	5:52 AM	Sun	Sunrise
	12:49 PM	12:49 PM	Moon	Moonsset
	7:53 PM	7:53 PM	Iridium Flare	CHES:Iridium 96 Flares at mag.-6.8 (Azm 331 Alt 36)
	7:55 PM	7:55 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
	10:20 PM	10:20 PM	Twilight	Astronomical Twilight ends

Norfolk Astronomical Society Astronomical Calendar

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

Calendar

	Start	End	Category	Description
29 Jun 2013	11:16 PM	11:16 PM	Iridium Flare	CHES:Iridium 83 Flares at mag.-1.3 (Azm 245 Alt 20)
30 Jun 2013	12:42 AM	12:42 AM	Moon	Moonrise
	1:00 AM	1:00 AM	Diary	LAST QUARTER
	2:47 AM	2:47 AM	Iridium Flare	CHES:Iridium 65 Flares at mag.-0.1 (Azm 301 Alt 15)
	4:02 AM	4:02 AM	Twilight	Astronomical Twilight begins
	4:07 AM	4:07 AM	Iridium Flare	CHES:Iridium 45 Flares at mag.-4.4 (Azm 269 Alt 51)
	5:20 AM	5:20 AM	Jupiter	Jupiter rises
	5:53 AM	5:53 AM	Sun	Sunrise
	9:00 AM	9:00 AM	Diary	Uranus 3.5S of Moon
	1:49 PM	1:49 PM	Moon	Moonset
	3:34 PM	3:34 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	7:52 PM	7:52 PM	Jupiter	Jupiter sets
	8:29 PM	8:29 PM	Sun	Sunset
	10:20 PM	10:20 PM	Twilight	Astronomical Twilight ends
	11:10 PM	11:10 PM	Iridium Flare	CHES:Iridium 56 Flares at mag.-6.8 (Azm 246 Alt 21)