

Norfolk Astronomical Society



<http://norfolkastronomical.org>

October 2013

Monthly Sky Calendar
Prepared Specifically For
The Hampton Roads Area

Upcoming Regular Meetings

DATE	Monday, Oct. 21, 2013
TIME	6 - 8 PM EDT
WHERE	Chesapeake Public Library, Major Hillard branch Conf. Room
TOPIC	Prospects for Comet ISON

DATE	Monday, Nov. 18, 2013
TIME	6 - 8 PM EDT
WHERE	Chesapeake Public Library, Major Hillard branch Conf. Room
TOPIC	Spacewatch Comet and Asteroid Hunting Project (rescheduled)

LADEE Mission Launches to the Moon From Wallops

Photo By Glendon L. Howell



The 11:27 PM EDT September 6 night launch of the Lunar Atmosphere and Dust Environment Explorer (LADEE) mission from Wallops Island was photographed by Glen from dark rural Gates County, NC. He used his Canon Digital Rebel Xti on a tripod. The image is a 60 second exposure taken through his Canon EFS 18-55mm lens. Lens was set at 18mm f/5.6. Camera was set to ISO 1600. Using a laptop to monitor the launch, Glen opened the shutter right after launch, but before the Minotaur V rocket had climbed above the trees.

2013 VAAS ANNUAL MEETING

It is with great pleasure that the Northern Virginia Astronomy Club (NOVAC) invites you to attend the 2013 annual meeting of the Virginia Association of Astronomical Societies (VAAS) on Saturday October 5th 8:30 AM to 3:00 PM at C. M. Crockett Park near Warrenton, Virginia. This meeting will be held in combination with NOVAC's big annual public outreach event, Star Gaze which should provide attendees with a very full day of presentations, solar and night sky observing and socializing with members not only from Virginia but also Washington, D. C. and Maryland.

This is a **free** event for all VAAS attendees but please note, the park charges a \$6 per car entrance fee. All attendees are encouraged to bring their solar and night-time observing equipment. While not the darkest site in Northern Virginia, Crockett has the advantage of ease of access and you can set up your rig next to your car on the flat, well mowed grass field.

Registration is required so please sign up here for VAAS 2013 as soon as you know that you are attending so that we can get an accurate head count for breakfast and lunch. **Register now:** <http://www.novac.com/wp/vaas/>

Sign in will begin at 8:30 AM on the 5th accompanied by a light breakfast. At 9:45 NOVAC President Phil Wherry will welcome attendees and then we will have two presentations plus a round-table discussion on amateur astronomy by VAAS members with participation from the audience. All presentations will take place rain or shine in our large tent adjoining the observing field.

NOVAC will have lunch catered beginning at 12:00 PM. VAAS attendees will be on their own for dinner but we will have hand-outs at our club tent that list a number of fine eateries in the area. **Star Gaze** begins at 3 PM and VAAS attendees are welcome to attend three more presentations and interact with our public guests.

For more information about the *Star Gaze* program, please go to www.novac.com/wp/outreach/stargaze/. There are directions to C. M. Crockett Park located there as well. The public will have to leave by 11:00 PM but VAAS attendees and NOVAC members are welcome to stay as long as they like on the observing field. Should rain or clouds wipe out Saturday night observing, there will be a back-up observing session on Sunday evening the 6th.

If you have any questions, please contact me by email at 36dwerth@comcast.net. I hope you can join us for YOUR 2013 VAAS meeting!

Clear Skies!

David Werth

NOVAC Program Coordinator

**2013 EAST COAST STAR PARTY-OCT 31, NOV 1 & 2
HALLOWEEN COSTUME PARTY
SOLAR ECLIPSE PARTY**

(The Star Party Ends Sunday morning November 3)

**Star Party Registration – One time fee of \$20/per person
Pay Kent at the star party registration desk in the observing area**

Camping Rates:

Pay camping fees at the campground store

Primitive Camping (includes tents and trailers NOT requiring Electric, Water or Sewage)
\$20/night, per campsite

R/V Units with Electric & Water but no Sewage
\$30/night, per campsite

R/V Units requiring Electric, Water & Sewage
\$40/night, per campsite

Hampton Lodge Campground – Coinjock, NC (252-453-2732)

Portable restrooms conveniently located near observing area

Showers and country store located on the campground site

You may camp near your telescope

No AC is available in the observing field

**NOTE: THE SKY IS 6TH- MAGNITUDE BUT CEDAR TREES OBSTRUCT THE HORIZON
OBSERVING AREA IS 100' TO THE LEFT AFTER CAMPGROUND ENTRANCE GATE
JUST FOLLOW THE "TELESCOPES" SIGNS
PLEASE OBEY CAMPGROUND 10 MPH SPEED LIMIT AT ALL TIMES**

AGENDA

THURSDAY OCTOBER 31:

**REGISTRATION: BEGINS AT 2:00 PM & CONTINUES ALL WEEKEND
Coffee & snacks served all night**

FRIDAY

RELAX ALL DAY & OBSERVE ALL NIGHT

SATURDAY:

OPTIONAL: BRUNCH AT MEL'S DINER AT 10:00AM

5:00 PM COOKOUT AT OBSERVING SITE

**KENT WILL SUPPLY HAMBURGERS, HOT DOGS, AND SOFT DRINKS - BRING A DISH IF
YOU WOULD LIKE**

6:00 PM COSTUME PRIZE (\$50 Adults) (\$20 Kids) & DOOR PRIZE DRAWINGS

SUNDAY MORNING AT SUNRISE:

SOLAR ECLIPSE – JOIN US BY THE WATER'S EDGE AT THE BOAT RAMP

DOOR PRIZES (ADULTS) To Be Announced

DOOR PRIZES (KIDS) To Be Announced

Kent Blackwell, Organizer, kent@exis.net

C/2012 S1 (ISON)

Epoch 2013 Nov. 4.0 TT = JDT 2456600.5

T 2013 Nov. 28.7749 TT

q	0.012444	(2000.0)	P	Q	MPC
z	-0.000162	Peri.	345.5644	+0.3151345	+0.5123878
	+/-0.000001	Node	295.6530	-0.7589371	-0.3693355
e	1.000002	Incl.	62.3985	-0.5698287	+0.7752741

From 3997 observations 2011 Sept. 30-2013 Sept. 16, mean residual 0".5.

Date	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2013 10 06	09 45	40.8	+16 31 35	2.0028	1.5553	49.7	29.3	10.5	
2013 10 13	10 03	12.0	+14 41 15	1.7926	1.4161	52.0	33.7	10.0	
2013 10 20	10 23	57.6	+12 21 06	1.5814	1.2698	53.4	39.0	9.3	
2013 10 27	10 49	36.7	+09 15 33	1.3732	1.1146	53.3	45.6	8.6	
2013 11 03	11 22	55.2	+04 59 17	1.1751	0.9479	51.0	54.5	7.7	
2013 11 10	12 08	32.5	-01 05 08	1.0016	0.7651	45.2	66.6	6.6	
2013 11 17	13 13	37.4	-09 27 27	0.8813	0.5574	34.1	83.6	5.2	
2013 11 24	14 45	42.6	-18 53 55	0.8693	0.3002	17.1	104.3	3.0	
2013 12 01	16 19	11.9	-13 59 09	0.8681	0.1756	8.1	128.1	1.1	
2013 12 08	16 11	28.1	-00 41 59	0.6666	0.4717	24.8	118.9	4.0	
2013 12 15	16 10	35.3	+14 39 44	0.5322	0.6928	42.5	106.2	4.9	
2013 12 22	16 14	46.0	+35 19 13	0.4484	0.8832	63.9	89.0	5.3	
2013 12 29	16 27	33.5	+60 16 06	0.4326	1.0552	87.2	68.6	5.9	

NOTE: Peak magnitude of -4.5 reached 11/29.

2P/Encke

Epoch 2013 Nov. 4.0 TT = JDT 2456600.5

T 2013 Nov. 21.6940 TT

q	0.336128	(2000.0)	P	Q	MPC
n	0.2990318	Peri.	186.5358	-0.9451060	-0.3147896
a	2.214749	Node	334.5730	+0.3082838	-0.7700539
e	0.848232	Incl.	11.7789	+0.1083320	-0.5549095
P	3.30				

From 1478 observations 1993-2011, mean residual 0".6. Nongravitational parameters A1 = -0.01, A2 = -0.0007.

Date	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2013 10 06	07 48	22.7	+43 17 05	0.5419	1.0722	82.4	67.6	10.6	17.7
2013 10 13	09 21	27.5	+39 04 49	0.4874	0.9570	71.0	80.3	9.7	17.6
2013 10 20	10 49	39.0	+29 30 27	0.4824	0.8362	56.9	94.2	8.8	17.9
2013 10 27	11 57	51.1	+17 28 55	0.5327	0.7103	43.6	105.3	7.9	18.3
2013 11 03	12 48	00.1	+06 20 34	0.6340	0.5811	33.5	109.4	7.0	18.5
2013 11 10	13 28	17.0	-02 59 22	0.7806	0.4561	26.6	103.3	5.8	18.0
2013 11 17	14 07	41.6	-11 00 27	0.9677	0.3595	21.1	82.7	4.8	17.1
2013 11 24	14 53	53.8	-17 57 13	1.1715	0.3419	15.4	50.0	4.9	16.4
2013 12 01	15 44	43.6	-23 04 03	1.3509	0.4177	10.1	24.5	6.5	16.4
2013 12 08	16 32	50.8	-26 08 52	1.5024	0.5371	6.8	12.5	8.3	16.8
2013 12 15	17 15	35.7	-27 43 43	1.6393	0.6661	5.5	8.1	9.9	17.3
2013 12 22	17 52	57.7	-28 19 22	1.7683	0.7936	5.2	6.4	11.2	17.7
2013 12 29	18 25	35.2	-28 16 57	1.8912	0.9162	5.2	5.6	12.3	18.1

C/2013 R1 (Lovejoy)

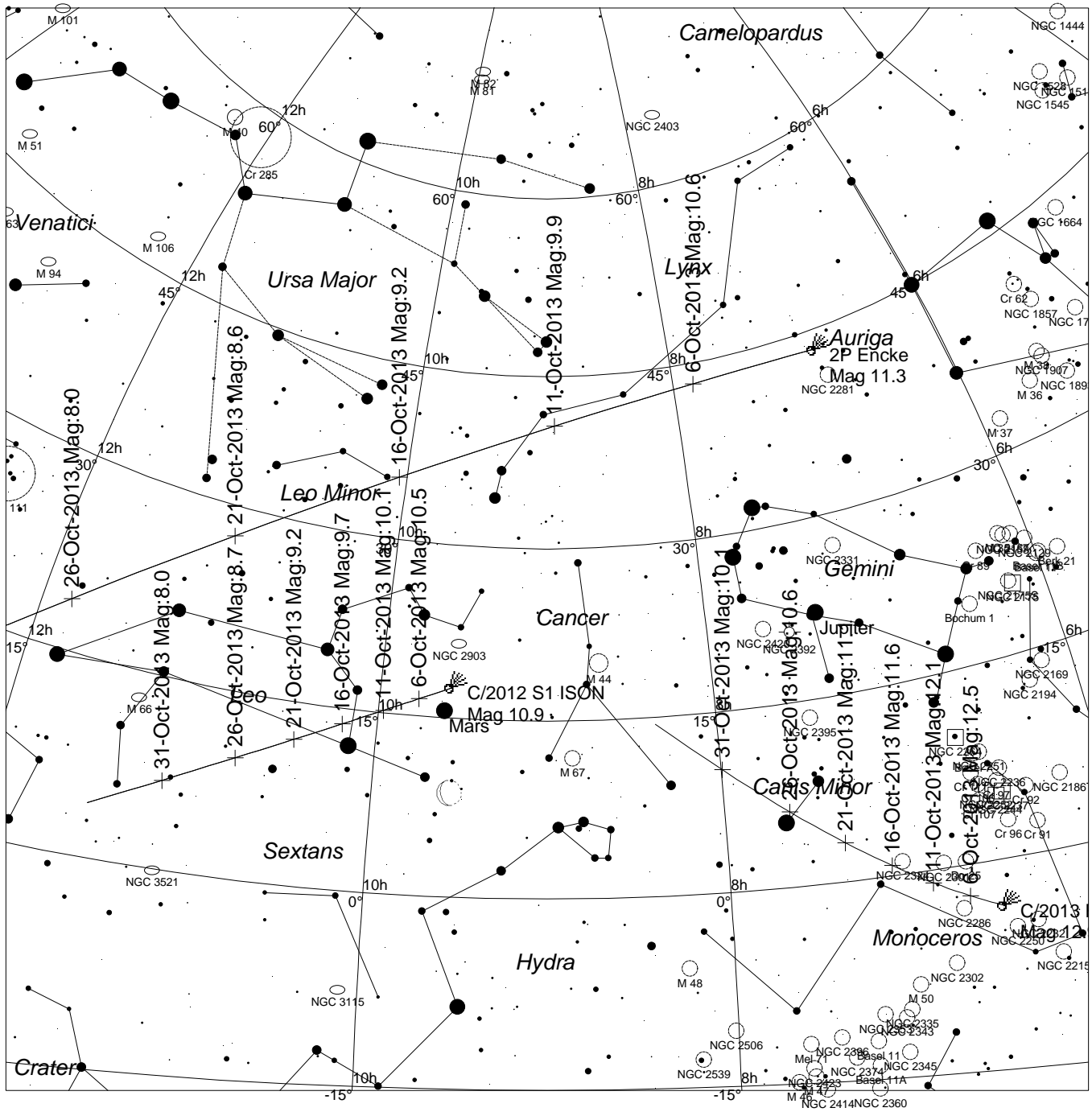
T 2013 Dec. 22.9688 TT

q	0.817711	(2000.0)	P	Q	MPC
		Peri.	66.7748	-0.2541275	-0.4645501
		Node	70.9320	+0.1353100	-0.8855449
e	1.0	Incl.	63.8374	+0.9576588	+0.0018463

From 188 observations 2013 Sept. 7-16.

Date	TT	R. A. (2000)	Decl.	Delta	r	Elong.	Phase	m1	m2
2013 10 06	06 45	42.7	-02 20 54	1.2404	1.5940	90.1	38.8	12.5	
2013 10 13	07 00	40.0	-00 20 37	1.0710	1.5000	92.9	41.6	11.9	
2013 10 20	07 18	36.3	+02 29 41	0.9048	1.4066	95.4	44.8	11.3	
2013 10 27	07 41	44.3	+06 40 33	0.7451	1.3144	97.2	48.6	10.5	
2013 11 03	08 14	29.7	+13 03 05	0.5982	1.2243	97.6	53.4	9.8	
2013 11 10	09 06	20.7	+22 42 58	0.4771	1.1375	95.2	60.1	9.0	
2013 11 17	10 35	18.2	+35 00 37	0.4062	1.0556	88.0	69.4	8.3	
2013 11 24	12 47	10.8	+42 49 44	0.4115	0.9810	77.1	78.8	8.0	
2013 12 01	14 45	19.7	+41 12 21	0.4887	0.9164	67.3	83.2	8.1	
2013 12 08	15 56	23.9	+35 55 47	0.6079	0.8654	60.4	81.9	8.3	
2013 12 15	16 37	24.4	+30 45 56	0.7445	0.8316	55.4	77.1	8.6	
2013 12 22	17 03	21.9	+26 17 07	0.8842	0.8179	51.6	70.5	8.9	
2013 12 29	17 21	35.4	+22 22 29	1.0185	0.8257	48.7	63.4	9.2	

October Morning Comets



STARS	SYMBOLS	
● <2	☄ Comet	⊕ Globular Cluster
● 2.5	☿ Asteroid	⊖ Planetary Nebula
● 3	☾ Galaxy	☉ Quasar
● 3.5	○ Open Cluster	○ Other Object
● 4	□ Bright Nebula	

Three comets grace the morning sky in October. The moon should be out of the morning sky between October 2 - 17. Chart created by Skymap 3.0

Local Time: 00:00:00 1-Oct-2013 UTC: 03:59:59 1-Oct-2013 Sidereal Time: 23:35:06
 Location: 36° 49' 48" N 76° 16' 48" W RA: 9h00m00s Dec: +30° 00' Field: 90.0° Julian Day: 2456566.6667

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
1 Oct 2013	12:33 AM	12:33 AM	Jupiter	Jupiter rises
	3:40 AM	3:40 AM	Moon	Moonrise
	4:38 AM	4:38 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azim 38.4 Alt 15)
	5:19 AM	5:19 AM	Lunar Occult	Moon occults 8.0 mag. star SAO117874(r)
	5:37 AM	5:37 AM	Twilight	Astronomical Twilight begins
	6:15 AM	6:15 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azim 224.0 Alt 73)
	7:03 AM	7:03 AM	Sun	Sunrise
	8:32 AM	8:32 AM	Jup GRS	GRS Transit (CML=203)
	2:57 PM	2:57 PM	Jupiter	Jupiter sets
	3:00 PM	3:00 PM	Diary	Regulus 5.3N of Moon
	4:49 PM	4:49 PM	Moon	Moonset
	6:28 PM	6:28 PM	Jup GRS	GRS Transit (CML=203)
	6:50 PM	6:50 PM	Sun	Sunset
	8:17 PM	8:17 PM	Twilight	Astronomical Twilight ends
2 Oct 2013	12:30 AM	12:30 AM	Jupiter	Jupiter rises
	4:23 AM	4:23 AM	Jup GRS	GRS Transit (CML=203)
	4:38 AM	4:38 AM	Moon	Moonrise
	5:05 AM	5:05 AM	Iridium Flare	CHES:Iridium 64 Flares at mag.-0.4 (Azim 007 Alt 13)
	5:26 AM	5:26 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azim 38.5 Alt 58)
	5:38 AM	5:38 AM	Twilight	Astronomical Twilight begins
	7:03 AM	7:03 AM	Sun	Sunrise
	2:19 PM	2:19 PM	Jup GRS	GRS Transit (CML=203)
	2:54 PM	2:54 PM	Jupiter	Jupiter sets
	5:21 PM	5:21 PM	Moon	Moonset
6:49 PM	6:49 PM	Sun	Sunset	
8:16 PM	8:16 PM	Twilight	Astronomical Twilight ends	
3 Oct 2013	12:15 AM	12:15 AM	Jup GRS	GRS Transit (CML=203)
	12:26 AM	12:26 AM	Jupiter	Jupiter rises
	1:27 AM	1:27 AM	Jup Sats	III.Sh.E
	2:15 AM	2:15 AM	Jup Sats	II.Ec.D
	3:39 AM	3:39 AM	Jup Sats	III.Tr.I
	4:10 AM	4:10 AM	Jup Sats	I.Sh.I
	4:39 AM	4:39 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azim 90.5 Alt 17)
	4:59 AM	4:59 AM	Iridium Flare	CHES:Iridium 67 Flares at mag.-3.5 (Azim 007 Alt 11)
	5:26 AM	5:26 AM	Jup Sats	I.Tr.I
	5:37 AM	5:37 AM	Moon	Moonrise
	5:39 AM	5:39 AM	Twilight	Astronomical Twilight begins
	6:13 AM	6:13 AM	Sat Pass (ISS)	CHES:ISS Passes NW to S (Azim 229.0 Alt 22)
	6:23 AM	6:23 AM	Jup Sats	I.Sh.E
6:31 AM	6:31 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)	

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September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
3 Oct 2013	6:46 AM	6:46 AM	Jup Sats	III.Tr.E
	7:04 AM	7:04 AM	Sun	Sunrise
	10:10 AM	10:10 AM	Jup GRS	GRS Transit (CML=203)
	11:00 AM	11:00 AM	Diary	Uranus at opposition
	2:50 PM	2:50 PM	Jupiter	Jupiter sets
	5:54 PM	5:54 PM	Moon	Moonset
	6:47 PM	6:47 PM	Sun	Sunset
	8:06 PM	8:06 PM	Jup GRS	GRS Transit (CML=203)
8:14 PM	8:14 PM	Twilight	Astronomical Twilight ends	
4 Oct 2013	12:23 AM	12:23 AM	Jupiter	Jupiter rises
	1:20 AM	1:20 AM	Jup Sats	I.Ec.D
	3:31 AM	3:31 AM	Jup Sats	IV.Oc.R
	4:55 AM	4:55 AM	Jup Sats	I.Oc.R
	4:58 AM	4:58 AM	Iridium Flare	CHES:Iridium 74 Flares at mag.-0.6 (Azm 005 Alt 13)
	5:26 AM	5:26 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 173.0 Alt 27)
	5:39 AM	5:39 AM	Twilight	Astronomical Twilight begins
	6:02 AM	6:02 AM	Jup GRS	GRS Transit (CML=203)
	6:38 AM	6:38 AM	Moon	Moonrise
	7:05 AM	7:05 AM	Sun	Sunrise
	2:47 PM	2:47 PM	Jupiter	Jupiter sets
	3:57 PM	3:57 PM	Jup GRS	GRS Transit (CML=203)
	6:28 PM	6:28 PM	Moon	Moonset
	6:46 PM	6:46 PM	Sun	Sunset
7:00 PM	7:00 PM	Meetings	NAS Observing Session (Gates Co., NC)	
8:13 PM	8:13 PM	Twilight	Astronomical Twilight ends	
8:26 PM	8:26 PM	Iridium Flare	CHES:Iridium 33 Flares at mag.-0.7 (Azm 131 Alt 43)	
9:00 PM	9:00 PM	Diary	NEW MOON	
5 Oct 2013	12:20 AM	12:20 AM	Jupiter	Jupiter rises
	12:51 AM	12:51 AM	Jup Sats	I.Sh.E
	1:53 AM	1:53 AM	Jup GRS	GRS Transit (CML=203)
	2:05 AM	2:05 AM	Jup Sats	II.Tr.E
	2:08 AM	2:08 AM	Jup Sats	I.Tr.E
	5:40 AM	5:40 AM	Twilight	Astronomical Twilight begins
	7:06 AM	7:06 AM	Sun	Sunrise
	7:41 AM	7:41 AM	Moon	Moonrise
	9:45 AM	9:45 AM		Virginia Association of Astronomical Societies convention at C M Crockett SP, Warrenton, VA
	11:49 AM	11:49 AM	Jup GRS	GRS Transit (CML=203)
	2:43 PM	2:43 PM	Jupiter	Jupiter sets
	6:41 PM	6:41 PM	Iridium Flare	CHES:Iridium 45 Flares at mag.-4.1 (Azm 194 Alt 52)
	6:45 PM	6:45 PM	Sun	Sunset

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
5 Oct 2013	7:00 PM	7:00 PM	Diary	Spica 0.8S of Moon Occn
	7:05 PM	7:05 PM	Moon	Moonset
	8:11 PM	8:11 PM	Twilight	Astronomical Twilight ends
	9:45 PM	9:45 PM	Jup GRS	GRS Transit (CML=203)
6 Oct 2013	12:16 AM	12:16 AM	Jupiter	Jupiter rises
	3:20 AM	3:20 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	5:41 AM	5:41 AM	Twilight	Astronomical Twilight begins
	7:07 AM	7:07 AM	Sun	Sunrise
	7:40 AM	7:40 AM	Jup GRS	GRS Transit (CML=203)
	8:45 AM	8:45 AM	Moon	Moonrise
	2:40 PM	2:40 PM	Jupiter	Jupiter sets
	5:36 PM	5:36 PM	Jup GRS	GRS Transit (CML=203)
	6:43 PM	6:43 PM	Sun	Sunset
	7:45 PM	7:45 PM	Moon	Moonset
	8:10 PM	8:10 PM	Twilight	Astronomical Twilight ends
	8:21 PM	8:21 PM	Iridium Flare	CHES:Iridium 58 Flares at mag.-1.0 (AzM 138 Alt 47)
	8:25 PM	8:25 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (AzM 203.8 Alt 32)
9:00 PM	9:00 PM	Diary	Mercury 2.7S of Moon	
7 Oct 2013	12:00 AM	12:00 AM	Diary	Saturn 1.9N of Moon
	12:13 AM	12:13 AM	Jupiter	Jupiter rises
	3:32 AM	3:32 AM	Jup GRS	GRS Transit (CML=203)
	5:42 AM	5:42 AM	Twilight	Astronomical Twilight begins
	7:08 AM	7:08 AM	Sun	Sunrise
	9:50 AM	9:50 AM	Moon	Moonrise
	1:27 PM	1:27 PM	Jup GRS	GRS Transit (CML=203)
	2:36 PM	2:36 PM	Jupiter	Jupiter sets
	5:03 PM	5:03 PM	Iridium Flare	CHES:Iridium 72 Flares at mag.-4.9 (AzM 240 Alt 26)
	6:42 PM	6:42 PM	Sun	Sunset
	7:38 PM	7:38 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (AzM 132.8 Alt 30)
	8:09 PM	8:09 PM	Twilight	Astronomical Twilight ends
	8:15 PM	8:15 PM	Iridium Flare	CHES:Iridium 55 Flares at mag.-1.6 (AzM 141 Alt 48)
8:30 PM	8:30 PM	Moon	Moonset	
9:12 PM	9:12 PM	Sat Pass (ISS)	CHES:ISS Passes W to NE (AzM 273.8 Alt 13)	
11:23 PM	11:23 PM	Jup GRS	GRS Transit (CML=203)	
8 Oct 2013	12:09 AM	12:09 AM	Jupiter	Jupiter rises
	5:43 AM	5:43 AM	Twilight	Astronomical Twilight begins
	7:08 AM	7:08 AM	Sun	Sunrise
	9:19 AM	9:19 AM	Jup GRS	GRS Transit (CML=203)
	10:00 AM	10:00 AM	Diary	Venus 4.6S of Moon

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September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
8 Oct 2013	10:54 AM	10:54 AM	Moon	Moonrise
	2:32 PM	2:32 PM	Jupiter	Jupiter sets
	5:00 PM	5:00 PM	Diary	Mercury 5.0S of Saturn
	6:40 PM	6:40 PM	Sun	Sunset
	6:49 PM	6:49 PM	Sat Pass (ISS)	CHES:ISS Passes S to NE (Azm 129.2 Alt 16)
	7:14 PM	7:14 PM	Jup GRS	GRS Transit (CML=203)
	8:07 PM	8:07 PM	Twilight	Astronomical Twilight ends
	8:09 PM	8:09 PM	Iridium Flare	CHES:Iridium 31 Flares at mag.-2.5 (Azm 141 Alt 46)
	8:15 PM	8:15 PM	Sat Pass (HST)	CHES:HST Passes SW to E (Azm 169.9 Alt 17)
	8:25 PM	8:25 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 323.2 Alt 43)
9:21 PM	9:21 PM	Moon	Moonset	
9 Oct 2013	12:00 AM	12:00 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	12:06 AM	12:06 AM	Jupiter	Jupiter rises
	3:00 AM	3:00 AM	Diary	Mercury greatest elong E(25)
	5:10 AM	5:10 AM	Jup GRS	GRS Transit (CML=203)
	5:44 AM	5:44 AM	Twilight	Astronomical Twilight begins
	7:09 AM	7:09 AM	Sun	Sunrise
	11:56 AM	11:56 AM	Moon	Moonrise
	2:29 PM	2:29 PM	Jupiter	Jupiter sets
	3:06 PM	3:06 PM	Jup GRS	GRS Transit (CML=203)
	6:39 PM	6:39 PM	Sun	Sunset
7:36 PM	7:36 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 321.3 Alt 81)	
8:06 PM	8:06 PM	Twilight	Astronomical Twilight ends	
8:10 PM	8:10 PM	Sat Pass (HST)	CHES:HST Passes SW to E (Azm 167.6 Alt 20)	
10:18 PM	10:18 PM	Moon	Moonset	
10 Oct 2013	12:02 AM	12:02 AM	Jupiter	Jupiter rises
	1:01 AM	1:01 AM	Jup GRS	GRS Transit (CML=203)
	2:28 AM	2:28 AM	Jup Sats	III.Sh.I
	4:49 AM	4:49 AM	Jup Sats	II.Ec.D
	5:26 AM	5:26 AM	Jup Sats	III.Sh.E
	5:45 AM	5:45 AM	Twilight	Astronomical Twilight begins
	6:03 AM	6:03 AM	Jup Sats	I.Sh.I
	7:10 AM	7:10 AM	Sun	Sunrise
	10:57 AM	10:57 AM	Jup GRS	GRS Transit (CML=203)
	12:54 PM	12:54 PM	Moon	Moonrise
	2:25 PM	2:25 PM	Jupiter	Jupiter sets
	4:00 PM	4:00 PM	Diary	Moon at perigee
	6:37 PM	6:37 PM	Sun	Sunset
	6:47 PM	6:47 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 134.8 Alt 51)
8:04 PM	8:04 PM	Twilight	Astronomical Twilight ends	

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
10 Oct 2013	8:04 PM	8:04 PM	Sat Pass (HST)	CHES:HST Passes SW to E (AzM 170.6 Alt 22)
	8:24 PM	8:24 PM	Sat Pass (ISS)	CHES:ISS Passes W to NE (AzM 331.8 Alt 19)
	8:53 PM	8:53 PM	Jup GRS	GRS Transit (CML=203)
	11:19 PM	11:19 PM	Moon	Moonset
	11:59 PM	11:59 PM	Jupiter	Jupiter rises
11 Oct 2013	3:00 AM	3:00 AM	Diary	Pluto 1.6S of Moon
	3:14 AM	3:14 AM	Jup Sats	I.Ec.D
	5:45 AM	5:45 AM	Twilight	Astronomical Twilight begins
	6:23 AM	6:23 AM	Iridium Flare	CHES:Iridium 26 Flares at mag. 0.4 (AzM 009 Alt 45)
	6:49 AM	6:49 AM	Jup GRS	GRS Transit (CML=203)
	6:50 AM	6:50 AM	Jup Sats	I.Oc.R
	7:11 AM	7:11 AM	Sun	Sunrise
	1:46 PM	1:46 PM	Moon	Moonrise
	2:22 PM	2:22 PM	Jupiter	Jupiter sets
	4:44 PM	4:44 PM	Jup GRS	GRS Transit (CML=203)
	6:36 PM	6:36 PM	Sun	Sunset
	7:00 PM	7:00 PM	Diary	FIRST QUARTER
	7:35 PM	7:35 PM	Sat Pass (ISS)	CHES:ISS Passes W to NE (AzM 326.9 Alt 29)
	7:59 PM	7:59 PM	Sat Pass (HST)	CHES:HST Passes SW to E (AzM 173.8 Alt 24)
	8:03 PM	8:03 PM	Twilight	Astronomical Twilight ends
	8:48 PM	8:48 PM	Lunar Occult	Moon occults 3.9 mag. double star ZC2826(D) rho Sgr
8:58 PM	8:58 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)	
9:36 PM	9:36 PM	Sat Pass (HST)	CHES:HST Passes W to SE (AzM 247.3 Alt 6)	
9:57 PM	9:57 PM	Lunar Occult	Moon occults 3.9 mag. double star ZC2826(r) rho Sgr	
11:55 PM	11:55 PM	Jupiter	Jupiter rises	
12 Oct 2013	12:23 AM	12:23 AM	Moon	Moonset
	12:31 AM	12:31 AM	Jup Sats	I.Sh.I
	1:41 AM	1:41 AM	Jup Sats	IV.Sh.E
	1:48 AM	1:48 AM	Jup Sats	I.Tr.I
	2:01 AM	2:01 AM	Jup Sats	II.Sh.E
	2:02 AM	2:02 AM	Jup Sats	II.Tr.I
	2:40 AM	2:40 AM	Jup GRS	GRS Transit (CML=203)
	2:44 AM	2:44 AM	Jup Sats	I.Sh.E
	4:02 AM	4:02 AM	Jup Sats	I.Tr.E
	4:43 AM	4:43 AM	Jup Sats	II.Tr.E
	5:46 AM	5:46 AM	Twilight	Astronomical Twilight begins
	7:12 AM	7:12 AM	Sun	Sunrise
	10:19 AM	10:19 AM	Iridium Flare	CHES:Iridium 19 Flares at mag.-5.1 (AzM 140 Alt 58)
	12:36 PM	12:36 PM	Jup GRS	GRS Transit (CML=203)
2:18 PM	2:18 PM	Jupiter	Jupiter sets	

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
12 Oct 2013	2:33 PM	2:33 PM	Moon	Moonrise
	6:35 PM	6:35 PM	Sun	Sunset
	6:45 PM	6:45 PM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azim 322.0 Alt 49)
	7:53 PM	7:53 PM	Iridium Flare	CHES:Iridium 32 Flares at mag. 1.2 (Azim 156 Alt 49)
	7:54 PM	7:54 PM	Sat Pass (HST)	CHES:HST Passes SW to E (Azim 176.6 Alt 26)
	8:02 PM	8:02 PM	Twilight	Astronomical Twilight ends
	9:24 PM	9:24 PM	Lunar Occult	Moon occults 6.1 mag. double star ZC2968(d)
	9:31 PM	9:31 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azim 246.1 Alt 7)
	9:32 PM	9:32 PM	Lunar Occult	Moon occults 3.0 mag. double star ZC2969(D) beta Cap [Dabih Major]
	10:31 PM	10:31 PM	Jup GRS	GRS Transit (CML=203)
	10:46 PM	10:46 PM	Lunar Occult	Moon occults 3.0 mag. double star ZC2969(r) beta Cap [Dabih Major]
11:52 PM	11:52 PM	Jupiter	Jupiter rises	
13 Oct 2013	1:18 AM	1:18 AM	Jup Sats	I.Oc.R
	1:29 AM	1:29 AM	Moon	Moonset
	5:47 AM	5:47 AM	Twilight	Astronomical Twilight begins
	6:17 AM	6:17 AM	Iridium Flare	CHES:Iridium 3 Flares at mag. 0.1 (Azim 001 Alt 43)
	7:13 AM	7:13 AM	Sun	Sunrise
	8:27 AM	8:27 AM	Jup GRS	GRS Transit (CML=203)
	2:14 PM	2:14 PM	Jupiter	Jupiter sets
	3:15 PM	3:15 PM	Moon	Moonrise
	6:23 PM	6:23 PM	Jup GRS	GRS Transit (CML=203)
	6:33 PM	6:33 PM	Sun	Sunset
	7:44 PM	7:44 PM	Iridium Flare	CHES:Iridium 28 Flares at mag. 0.4 (Azim 151 Alt 46)
7:47 PM	7:47 PM	Iridium Flare	CHES:Iridium 58 Flares at mag.-8.0 (Azim 153 Alt 47)	
7:48 PM	7:48 PM	Sat Pass (HST)	CHES:HST Passes W to E (Azim 180.1 Alt 26)	
8:00 PM	8:00 PM	Twilight	Astronomical Twilight ends	
9:26 PM	9:26 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azim 243.7 Alt 8)	
11:48 PM	11:48 PM	Jupiter	Jupiter rises	
14 Oct 2013	12:00 AM	12:00 AM	Public Holiday	Columbus Day holiday
	12:50 AM	12:50 AM	Jup Sats	III.Oc.R
	2:35 AM	2:35 AM	Moon	Moonset
	4:18 AM	4:18 AM	Jup GRS	GRS Transit (CML=203)
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	6:11 AM	6:11 AM	Iridium Flare	CHES:Iridium 76 Flares at mag.-0.5 (Azim 000 Alt 41)
	7:14 AM	7:14 AM	Sun	Sunrise
	2:11 PM	2:11 PM	Jupiter	Jupiter sets
	2:14 PM	2:14 PM	Jup GRS	GRS Transit (CML=203)
	3:54 PM	3:54 PM	Moon	Moonrise
	5:47 PM	5:47 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
6:32 PM	6:32 PM	Sun	Sunset	

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
14 Oct 2013	6:44 PM	6:44 PM	Sat Pass (ISS)	CHES:ISS Passes W to NE (Azm 330.5 Alt 21)
	7:41 PM	7:41 PM	Iridium Flare	CHES:Iridium 55 Flares at mag.-5.2 (Azm 156 Alt 47)
	7:43 PM	7:43 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 183.1 Alt 26)
	7:58 PM	7:58 PM	Twilight	Astronomical Twilight ends
	9:21 PM	9:21 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 240.2 Alt 8)
	10:00 PM	10:00 PM	Diary	Neptune 5.4S of Moon
	11:44 PM	11:44 PM	Jupiter	Jupiter rises
15 Oct 2013	12:10 AM	12:10 AM	Jup GRS	GRS Transit (CML=203)
	3:41 AM	3:41 AM	Moon	Moonset
	5:49 AM	5:49 AM	Twilight	Astronomical Twilight begins
	6:05 AM	6:05 AM	Iridium Flare	CHES:Iridium 46 Flares at mag.-0.7 (Azm 004 Alt 40)
	7:15 AM	7:15 AM	Sun	Sunrise
	9:00 AM	9:00 AM	Diary	Mars 0.9N of Regulus
	10:05 AM	10:05 AM	Jup GRS	GRS Transit (CML=203)
	2:07 PM	2:07 PM	Jupiter	Jupiter sets
	4:30 PM	4:30 PM	Moon	Moonrise
	6:31 PM	6:31 PM	Sun	Sunset
	7:35 PM	7:35 PM	Iridium Flare	CHES:Iridium 31 Flares at mag. 1.1 (Azm 155 Alt 46)
	7:38 PM	7:38 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 186.3 Alt 25)
	7:56 PM	7:56 PM	Twilight	Astronomical Twilight ends
8:01 PM	8:01 PM	Jup GRS	GRS Transit (CML=203)	
11:41 PM	11:41 PM	Jupiter	Jupiter rises	
16 Oct 2013	4:45 AM	4:45 AM	Moon	Moonset
	5:50 AM	5:50 AM	Twilight	Astronomical Twilight begins
	5:57 AM	5:57 AM	Jup GRS	GRS Transit (CML=203)
	5:59 AM	5:59 AM	Iridium Flare	CHES:Iridium 49 Flares at mag.-3.4 (Azm 002 Alt 38)
	7:15 AM	7:15 AM	Sun	Sunrise
	2:03 PM	2:03 PM	Jupiter	Jupiter sets
	3:52 PM	3:52 PM	Jup GRS	GRS Transit (CML=203)
	5:05 PM	5:05 PM	Moon	Moonrise
	6:00 PM	6:00 PM	Diary	Venus 1.5N of Antares
	6:29 PM	6:29 PM	Sun	Sunset
	7:09 PM	7:09 PM	Lunar Occult	Moon occults 6.3 mag. double star ZC3515(d)
	7:33 PM	7:33 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 189.2 Alt 23)
	7:55 PM	7:55 PM	Twilight	Astronomical Twilight ends
11:37 PM	11:37 PM	Jupiter	Jupiter rises	
17 Oct 2013	1:48 AM	1:48 AM	Jup GRS	GRS Transit (CML=203)
	5:49 AM	5:49 AM	Moon	Moonset
	5:51 AM	5:51 AM	Twilight	Astronomical Twilight begins

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
17 Oct 2013	6:26 AM	6:26 AM	Jup Sats	III.Sh.I
	7:16 AM	7:16 AM	Sun	Sunrise
	7:55 AM	7:55 AM	Iridium Flare	CHES:Iridium 33 Flares at mag. -7.9 (Azm 025 Alt 72)
	11:44 AM	11:44 AM	Jup GRS	GRS Transit (CML=203)
	2:00 PM	2:00 PM	Jupiter	Jupiter sets
	2:36 PM	2:36 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	3:00 PM	3:00 PM	Diary	Uranus 3.2S of Moon
	5:40 PM	5:40 PM	Moon	Moonrise
	6:28 PM	6:28 PM	Sun	Sunset
	7:27 PM	7:27 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 192.4 Alt 20)
	7:54 PM	7:54 PM	Twilight	Astronomical Twilight ends
	8:40 PM	8:40 PM	Lunar Occult	Moon occults 6.0 mag. star 98(d)
	9:39 PM	9:39 PM	Jup GRS	GRS Transit (CML=203)
	11:34 PM	11:34 PM	Jupiter	Jupiter rises
18 Oct 2013	5:08 AM	5:08 AM	Jup Sats	I.Ec.D
	5:47 AM	5:47 AM	Iridium Flare	CHES:Iridium 25 Flares at mag. 1.7 (Azm 003 Alt 34)
	5:48 AM	5:48 AM	Iridium Flare	CHES:Iridium 26 Flares at mag. 1.1 (Azm 002 Alt 34)
	5:51 AM	5:51 AM	Twilight	Astronomical Twilight begins
	6:51 AM	6:51 AM	Moon	Moonset
	7:17 AM	7:17 AM	Sun	Sunrise
	7:35 AM	7:35 AM	Jup GRS	GRS Transit (CML=203)
	1:56 PM	1:56 PM	Jupiter	Jupiter sets
	5:31 PM	5:31 PM	Jup GRS	GRS Transit (CML=203)
	6:16 PM	6:16 PM	Moon	Moonrise
	6:27 PM	6:27 PM	Sun	Sunset
	7:22 PM	7:22 PM	Sat Pass (HST)	CHES:HST Passes W to SE (Azm 195.3 Alt 17)
	7:26 PM	7:26 PM	Iridium Flare	CHES:Iridium 29 Flares at mag. 1.6 (Azm 172 Alt 48)
	7:53 PM	7:53 PM	Twilight	Astronomical Twilight ends
8:00 PM	8:00 PM	Diary	FULL MOON Eclipse	
11:30 PM	11:30 PM	Jupiter	Jupiter rises	
19 Oct 2013	2:00 AM	2:00 AM	Jup Sats	II.Sh.I
	2:24 AM	2:24 AM	Jup Sats	I.Sh.I
	3:26 AM	3:26 AM	Jup GRS	GRS Transit (CML=203)
	3:40 AM	3:40 AM	Jup Sats	I.Tr.I
	4:37 AM	4:37 AM	Jup Sats	II.Tr.I
	4:38 AM	4:38 AM	Jup Sats	I.Sh.E
	4:38 AM	4:38 AM	Jup Sats	II.Sh.E
	5:52 AM	5:52 AM	Twilight	Astronomical Twilight begins
	5:54 AM	5:54 AM	Jup Sats	I.Tr.E
7:18 AM	7:18 AM	Sun	Sunrise	

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
19 Oct 2013	7:53 AM	7:53 AM	Moon	Moonset
	1:22 PM	1:22 PM	Jup GRS	GRS Transit (CML=203)
	1:52 PM	1:52 PM	Jupiter	Jupiter sets
	6:25 PM	6:25 PM	Sun	Sunset
	6:54 PM	6:54 PM	Moon	Moonrise
	7:20 PM	7:20 PM	Iridium Flare	CHES:Iridium 32 Flares at mag.-1.5 (AzM 171 Alt 47)
	7:51 PM	7:51 PM	Twilight	Astronomical Twilight ends
	11:18 PM	11:18 PM	Jup GRS	GRS Transit (CML=203)
	11:26 PM	11:26 PM	Jupiter	Jupiter rises
20 Oct 2013	3:11 AM	3:11 AM	Jup Sats	I.Oc.R
	5:53 AM	5:53 AM	Twilight	Astronomical Twilight begins
	6:05 AM	6:05 AM	Jup Sats	IV.Ec.D
	7:19 AM	7:19 AM	Sun	Sunrise
	8:52 AM	8:52 AM	Moon	Moonset
	9:13 AM	9:13 AM	Jup GRS	GRS Transit (CML=203)
	9:39 AM	9:39 AM	Iridium Flare	CHES:Iridium 97 Flares at mag.-4.1 (AzM 135 Alt 71)
	11:25 AM	11:25 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	1:49 PM	1:49 PM	Jupiter	Jupiter sets
	6:24 PM	6:24 PM	Sun	Sunset
	7:09 PM	7:09 PM	Jup GRS	GRS Transit (CML=203)
	7:14 PM	7:14 PM	Iridium Flare	CHES:Iridium 58 Flares at mag. 0.1 (AzM 167 Alt 46)
	7:35 PM	7:35 PM	Moon	Moonrise
7:50 PM	7:50 PM	Twilight	Astronomical Twilight ends	
11:23 PM	11:23 PM	Jupiter	Jupiter rises	
21 Oct 2013	12:22 AM	12:22 AM	Jup Sats	I.Tr.E
	1:33 AM	1:33 AM	Jup Sats	III.Oc.D
	1:51 AM	1:51 AM	Jup Sats	II.Oc.R
	2:43 AM	2:43 AM		Asteroid 617 Patroclus (+14.7) occults +9.6 mag star TYC 0646-00730-1
	4:45 AM	4:45 AM	Jup Sats	III.Oc.R
	5:05 AM	5:05 AM	Jup GRS	GRS Transit (CML=203)
	5:39 AM	5:39 AM	Iridium Flare	CHES:Iridium 76 Flares at mag. 1.9 (AzM 355 Alt 29)
	5:54 AM	5:54 AM	Twilight	Astronomical Twilight begins
	7:20 AM	7:20 AM	Sun	Sunrise
	9:00 AM	9:00 AM	Diary	Mercury stationary
	9:49 AM	9:49 AM	Moon	Moonset
	1:45 PM	1:45 PM	Jupiter	Jupiter sets
	3:00 PM	3:00 PM	Jup GRS	GRS Transit (CML=203)
6:00 PM	6:00 PM	Meetings	NAS Regular Meeting at Chesapeake Public Library Major Hillard branch	
6:23 PM	6:23 PM	Sun	Sunset	
7:08 PM	7:08 PM	Iridium Flare	CHES:Iridium 55 Flares at mag. 0.6 (AzM 170 Alt 46)	

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	1	2	3	4	5		1	2						
8	9	10	11	12	13	14	6	7	8	9	10	11	12	3	4	5	6	7	8	9
15	16	17	18	19	20	21	13	14	15	16	17	18	19	10	11	12	13	14	15	16
22	23	24	25	26	27	28	20	21	22	23	24	25	26	17	18	19	20	21	22	23
29	30						27	28	29	30	31			24	25	26	27	28	29	30

Calendar

	Start	End	Category	Description
21 Oct 2013	7:49 PM	7:49 PM	Twilight	Astronomical Twilight ends
	8:18 PM	8:18 PM	Moon	Moonrise
	11:19 PM	11:19 PM	Jupiter	Jupiter rises
22 Oct 2013	12:56 AM	12:56 AM	Jup GRS	GRS Transit (CML=203)
	1:32 AM	1:32 AM	Lunar Occult	Moon occults 6.8 mag. star 643(r)
	5:33 AM	5:33 AM	Iridium Flare	CHES:Iridium 46 Flares at mag.-4.8 (Azm 358 Alt 28)
	5:55 AM	5:55 AM	Twilight	Astronomical Twilight begins
	7:21 AM	7:21 AM	Sun	Sunrise
	8:00 AM	8:00 AM	Diary	Aldebaran 2.7S of Moon
	10:43 AM	10:43 AM	Moon	Moonset
	10:52 AM	10:52 AM	Jup GRS	GRS Transit (CML=203)
	1:41 PM	1:41 PM	Jupiter	Jupiter sets
	6:22 PM	6:22 PM	Sun	Sunset
	7:09 PM	7:09 PM	Iridium Flare	CHES:Iridium 33 Flares at mag. 1.8 (Azm 181 Alt 45)
	7:48 PM	7:48 PM	Twilight	Astronomical Twilight ends
	8:14 PM	8:14 PM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 348.2 Alt 13)
	8:47 PM	8:47 PM	Jup GRS	GRS Transit (CML=203)
9:04 PM	9:04 PM	Moon	Moonrise	
11:15 PM	11:15 PM	Jupiter	Jupiter rises	
11:17 PM	11:17 PM	Meteor Shower	Orionids (Halley) meteor peak (zhr=20)	
23 Oct 2013	5:27 AM	5:27 AM	Iridium Flare	CHES:Iridium 49 Flares at mag.-1.8 (Azm 357 Alt 25)
	5:56 AM	5:56 AM	Twilight	Astronomical Twilight begins
	6:43 AM	6:43 AM	Jup GRS	GRS Transit (CML=203)
	7:22 AM	7:22 AM	Sun	Sunrise
	8:14 AM	8:14 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	11:33 AM	11:33 AM	Moon	Moonset
	1:37 PM	1:37 PM	Jupiter	Jupiter sets
	4:39 PM	4:39 PM	Jup GRS	GRS Transit (CML=203)
	6:20 PM	6:20 PM	Sun	Sunset
	7:47 PM	7:47 PM	Twilight	Astronomical Twilight ends
	9:00 PM	9:00 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 312.3 Alt 7)
9:54 PM	9:54 PM	Moon	Moonrise	
11:11 PM	11:11 PM	Jupiter	Jupiter rises	
24 Oct 2013	2:34 AM	2:34 AM	Jup GRS	GRS Transit (CML=203)
	5:21 AM	5:21 AM	Iridium Flare	CHES:Iridium 22 Flares at mag. 0.6 (Azm 359 Alt 23)
	5:56 AM	5:56 AM	Twilight	Astronomical Twilight begins
	7:23 AM	7:23 AM	Sun	Sunrise
	12:18 PM	12:18 PM	Moon	Moonset
	12:30 PM	12:30 PM	Jup GRS	GRS Transit (CML=203)

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
24 Oct 2013	1:34 PM	1:34 PM	Jupiter	Jupiter sets
	5:23 PM	5:23 PM	Iridium Flare	CHES:Iridium 3 Flares at mag.-6.0 (Azm 226 Alt 29)
	6:19 PM	6:19 PM	Sun	Sunset
	6:59 PM	6:59 PM	Iridium Flare	CHES:Iridium 60 Flares at mag. 1.8 (Azm 186 Alt 44)
	7:46 PM	7:46 PM	Twilight	Astronomical Twilight ends
	8:12 PM	8:12 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 336.5 Alt 22)
	10:26 PM	10:26 PM	Jup GRS	GRS Transit (CML=203)
	10:45 PM	10:45 PM	Moon	Moonrise
	11:08 PM	11:08 PM	Jupiter	Jupiter rises
25 Oct 2013	2:22 AM	2:22 AM	Lunar Occult	Moon occults 6.8 mag. star ZC1057(r)
	5:13 AM	5:13 AM	Iridium Flare	CHES:Iridium 26 Flares at mag. 1.9 (Azm 000 Alt 19)
	5:15 AM	5:15 AM	Iridium Flare	CHES:Iridium 25 Flares at mag.-1.5 (Azm 359 Alt 20)
	5:57 AM	5:57 AM	Twilight	Astronomical Twilight begins
	7:02 AM	7:02 AM	Jup Sats	I.Ec.D
	7:24 AM	7:24 AM	Sun	Sunrise
	8:21 AM	8:21 AM	Jup GRS	GRS Transit (CML=203)
	10:00 AM	10:00 AM	Diary	Moon at apogee
	1:00 PM	1:00 PM	Moon	Moonset
	1:30 PM	1:30 PM	Jupiter	Jupiter sets
	3:04 PM	3:04 PM	Iridium Flare	CHES:Iridium 68 Flares at mag.-4.5 (Azm 223 Alt 36)
	5:00 PM	5:00 PM	Diary	Jupiter 5.0N of Moon
	6:17 PM	6:17 PM	Jup GRS	GRS Transit (CML=203)
	6:18 PM	6:18 PM	Sun	Sunset
	6:53 PM	6:53 PM	Iridium Flare	CHES:Iridium 29 Flares at mag.-2.2 (Azm 184 Alt 44)
7:24 PM	7:24 PM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 31.6 Alt 25)	
7:45 PM	7:45 PM	Twilight	Astronomical Twilight ends	
8:58 PM	8:58 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 292.5 Alt 9)	
11:04 PM	11:04 PM	Jupiter	Jupiter rises	
11:38 PM	11:38 PM	Moon	Moonrise	
26 Oct 2013	4:13 AM	4:13 AM	Jup GRS	GRS Transit (CML=203)
	4:17 AM	4:17 AM	Jup Sats	I.Sh.I
	4:36 AM	4:36 AM	Jup Sats	II.Sh.I
	5:00 AM	5:00 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	5:10 AM	5:10 AM	Iridium Flare	CHES:Iridium 47 Flares at mag.-0.4 (Azm 359 Alt 16)
	5:32 AM	5:32 AM	Jup Sats	I.Tr.I
	5:58 AM	5:58 AM	Twilight	Astronomical Twilight begins
	6:31 AM	6:31 AM	Jup Sats	I.Sh.E
	7:10 AM	7:10 AM	Jup Sats	II.Tr.I
7:25 AM	7:25 AM	Sun	Sunrise	
1:26 PM	1:26 PM	Jupiter	Jupiter sets	

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30					
29	30						27	28	29	30	31			24	25	26	27	28	29	30

Calendar

	Start	End	Category	Description
26 Oct 2013	1:38 PM	1:38 PM	Moon	Moonset
	2:08 PM	2:08 PM	Jup GRS	GRS Transit (CML=203)
	6:17 PM	6:17 PM	Sun	Sunset
	6:35 PM	6:35 PM	Sat Pass (ISS)	CHES:ISS Passes NW to E (Azm 26.7 Alt 17)
	6:47 PM	6:47 PM	Iridium Flare	CHES:Iridium 32 Flares at mag.-1.6 (Azm 183 Alt 44)
	7:43 PM	7:43 PM	Twilight	Astronomical Twilight ends
	8:00 PM	8:00 PM	Diary	LAST QUARTER
	8:11 PM	8:11 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 283.9 Alt 43)
	11:00 PM	11:00 PM	Jupiter	Jupiter rises
27 Oct 2013	12:04 AM	12:04 AM	Jup GRS	GRS Transit (CML=203)
	12:32 AM	12:32 AM	Moon	Moonrise
	1:30 AM	1:30 AM	Jup Sats	I.Ec.D
	5:03 AM	5:03 AM	Jup Sats	I.Oc.R
	5:59 AM	5:59 AM	Twilight	Astronomical Twilight begins
	7:26 AM	7:26 AM	Sun	Sunrise
	9:02 AM	9:02 AM	Iridium Flare	CHES:Iridium 4 Flares at mag.-8.0 (Azm 111 Alt 81)
	10:00 AM	10:00 AM	Jup GRS	GRS Transit (CML=203)
	1:22 PM	1:22 PM	Jupiter	Jupiter sets
	2:13 PM	2:13 PM	Moon	Moonset
	5:15 PM	5:15 PM	Iridium Flare	CHES:Iridium 11 Flares at mag.-5.4 (Azm 230 Alt 25)
	6:16 PM	6:16 PM	Sun	Sunset
	7:22 PM	7:22 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azm 38.8 Alt 66)
	7:42 PM	7:42 PM	Twilight	Astronomical Twilight ends
	7:55 PM	7:55 PM	Jup GRS	GRS Transit (CML=203)
10:56 PM	10:56 PM	Jupiter	Jupiter rises	
11:12 PM	11:12 PM	Jup Sats	II.Ec.D	
11:59 PM	11:59 PM	Jup Sats	I.Tr.I	
28 Oct 2013	12:19 AM	12:19 AM	Jup Sats	III.Ec.D
	12:59 AM	12:59 AM	Jup Sats	I.Sh.E
	1:28 AM	1:28 AM	Moon	Moonrise
	2:14 AM	2:14 AM	Jup Sats	I.Tr.E
	3:23 AM	3:23 AM	Jup Sats	III.Ec.R
	4:20 AM	4:20 AM	Jup Sats	II.Oc.R
	5:23 AM	5:23 AM	Jup Sats	III.Oc.D
	5:51 AM	5:51 AM	Jup GRS	GRS Transit (CML=203)
	6:00 AM	6:00 AM	Twilight	Astronomical Twilight begins
	6:58 AM	6:58 AM	Iridium Flare	CHES:Iridium 30 Flares at mag.-4.4 (Azm 001 Alt 58)
	7:27 AM	7:27 AM	Sun	Sunrise
	1:19 PM	1:19 PM	Jupiter	Jupiter sets
	2:46 PM	2:46 PM	Moon	Moonset

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
28 Oct 2013	3:46 PM	3:46 PM	Jup GRS	GRS Transit (CML=203)
	6:15 PM	6:15 PM	Sun	Sunset
	6:33 PM	6:33 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azim 35.0 Alt 36)
	7:41 PM	7:41 PM	Twilight	Astronomical Twilight ends
	8:09 PM	8:09 PM	Sat Pass (ISS)	CHES:ISS Passes NW to S (Azim 229.9 Alt 20)
	10:53 PM	10:53 PM	Jupiter	Jupiter rises
	11:31 PM	11:31 PM	Jup Sats	I.Oc.R
29 Oct 2013	12:00 AM	12:00 AM	Diary	Regulus 5.3N of Moon
	1:42 AM	1:42 AM	Jup GRS	GRS Transit (CML=203)
	1:52 AM	1:52 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	2:24 AM	2:24 AM	Moon	Moonrise
	4:31 AM	4:31 AM	Jup Sats	IV.Tr.I
	6:01 AM	6:01 AM	Twilight	Astronomical Twilight begins
	6:52 AM	6:52 AM	Iridium Flare	CHES:Iridium 57 Flares at mag. 0.5 (Azim 003 Alt 57)
	7:28 AM	7:28 AM	Sun	Sunrise
	11:38 AM	11:38 AM	Jup GRS	GRS Transit (CML=203)
	1:15 PM	1:15 PM	Jupiter	Jupiter sets
	2:00 PM	2:00 PM	Diary	Mercury 3.6S of Saturn
	3:18 PM	3:18 PM	Moon	Moonset
	6:14 PM	6:14 PM	Sun	Sunset
	7:20 PM	7:20 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azim 226.3 Alt 38)
	7:40 PM	7:40 PM	Twilight	Astronomical Twilight ends
9:33 PM	9:33 PM	Jup GRS	GRS Transit (CML=203)	
10:49 PM	10:49 PM	Jupiter	Jupiter rises	
11:07 PM	11:07 PM	Jup Sats	II.Tr.E	
30 Oct 2013	3:22 AM	3:22 AM	Moon	Moonrise
	6:02 AM	6:02 AM	Twilight	Astronomical Twilight begins
	6:46 AM	6:46 AM	Iridium Flare	CHES:Iridium 60 Flares at mag. 0.9 (Azim 002 Alt 54)
	7:29 AM	7:29 AM	Sun	Sunrise
	7:29 AM	7:29 AM	Jup GRS	GRS Transit (CML=203)
	1:11 PM	1:11 PM	Jupiter	Jupiter sets
	3:50 PM	3:50 PM	Moon	Moonset
	5:25 PM	5:25 PM	Jup GRS	GRS Transit (CML=203)
	6:12 PM	6:12 PM	Sun	Sunset
	6:30 PM	6:30 PM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (Azim 223.4 Alt 78)
7:39 PM	7:39 PM	Twilight	Astronomical Twilight ends	
10:45 PM	10:45 PM	Jupiter	Jupiter rises	
31 Oct 2013	3:20 AM	3:20 AM	Jup GRS	GRS Transit (CML=203)
	4:22 AM	4:22 AM	Moon	Moonrise

Norfolk Astronomical Society Astronomical Calendar

September 2013							October 2013							November 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	5	6	7	6	7	8	9	10	11	12	3	4	5	6	7	8	9
8	9	10	11	12	13	14	13	14	15	16	17	18	19	10	11	12	13	14	15	16
15	16	17	18	19	20	21	20	21	22	23	24	25	26	17	18	19	20	21	22	23
22	23	24	25	26	27	28	27	28	29	30	31			24	25	26	27	28	29	30
29	30																			

Calendar

	Start	End	Category	Description
31 Oct 2013	6:03 AM	6:03 AM	Twilight	Astronomical Twilight begins
	7:30 AM	7:30 AM	Sun	Sunrise
	1:07 PM	1:07 PM	Jupiter	Jupiter sets
	1:16 PM	1:16 PM	Jup GRS	GRS Transit (CML=203)
	2:00 PM	2:00 PM		East Coast Star Party (ECSP) registration begins
	4:24 PM	4:24 PM	Moon	Moonset
	6:11 PM	6:11 PM	Sun	Sunset
	6:26 PM	6:26 PM	Iridium Flare	CHES:Iridium 60 Flares at mag.-7.4 (Azm 195 Alt 40)
	7:39 PM	7:39 PM	Twilight	Astronomical Twilight ends
	10:41 PM	10:41 PM	Jupiter	Jupiter rises
	10:41 PM	10:41 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	11:12 PM	11:12 PM	Jup GRS	GRS Transit (CML=203)