

# Norfolk Astronomical Society



*<http://norfolkastronomical.org>*

January 2013

Monthly Sky Calendar  
Prepared Specifically For  
The Hampton Roads Area

## Upcoming Regular Meetings

<b>DATE</b>	Monday, January 28, 2013
<b>TIME</b>	6 - 8 PM EST
<b>WHERE</b>	Chesapeake Public Library, Major Hillard branch Conf. Room
<b>TOPIC</b>	Prospects for viewing a bright Spring comet (Panstarrs)

<b>DATE</b>	Monday, February 25, 2013
<b>TIME</b>	6 - 8 PM EST
<b>WHERE</b>	Chesapeake Public Library, Major Hillard branch Conf. Room
<b>TOPIC</b>	To be arranged.

## M31, Spiral Galaxy In Andromeda Photo By Don Wright



Don Wright imaged M31, the Great Spiral Galaxy in Andromeda above on October 13, 2012 during the East Coast Star Party in Coinjock, NC. The image shows many scattered red doubly-ionized hydrogen (H-II) nebulae, where new stars are being born. These red regions show up nicely here due to his use of a Ha filter.

Five 10-minute exposures were taken through Astrodon LRGB & Ha filters, and five 2-minute LRGB feathered into the overexposed central bulge area (total of 45 exposures). Images were stacked in MaximDL and processed in Photoshop CS6.

A QSI-583ws cooled CCD camera recorded the images taken through a Televue NP-101 (4-inch f/5.4 APO refractor), tracking on a Losmandy G11 German Equatorial mount. The image was autoguided using a tandem Stellarvue SV80/9D refractor equipped with an Orion StarShoot AutoGuider, employing PHD guiding software.

Look for more of Don's work on his website <http://ww4rf.net>

# NAS Proposed Regular Meetings 2013

<b>WKDAY</b>	<b>DATE</b>	<b>2013 PROPOSED MEETING DATES &amp; TOPICS</b>
<b>MON</b>	<b>28-Jan</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>25-Feb</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>25-Mar</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>22-Apr</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>20-May</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>17-Jun</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>22-Jul</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>19-Aug</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>16-Sep</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>21-Oct</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>18-Nov</b>	<b>NAS Regular Meeting, 6 PM at Ches. Public Lib., Major Hillard branch. Topic TBA.</b>
<b>MON</b>	<b>16-Dec</b>	<b>NAS Anniversary Dinner Meeting, 6:00 PM, at a restaurant TBA.</b>

The above dates are proposed as our regular meeting dates. Dates are chosen to be on a Monday close to Full Moon, with some variances to avoid holidays. Dates are subject to change.

# NAS Proposed Observing Sessions 2013

<b>WKDAY</b>	<b>DATE</b>	<b>2013 OBSERVING SESSION SCHEDULE</b>
<b>FRI</b>	<b>11-Jan</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday.
<b>FRI</b>	<b>8-Feb</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday.
<b>FRI</b>	<b>8-Mar</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday. Comet C/2011 L4 PanStarrs debuts in evening sky (mag. +0.6).
<b>FRI</b>	<b>5-Apr</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday. View Comet PanStarrs (mag. +5.1)
<b>FRI</b>	<b>10-May</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday. View Comet PanStarrs circumpolar (mag. +8.2)
<b>FRI</b>	<b>7-Jun</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday.
<b>FRI</b>	<b>5-Jul</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday.
<b>FRI</b>	<b>2-Aug</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday.
<b>FRI</b>	<b>6-Sep</b>	<b>NAS Observing Session at Gates County site.</b> Rain date Saturday. View Comet C/2012 S1 ISON in morning sky (+11.5)
<b>FRI</b>	<b>4-Oct</b>	<b>NAS Observing Session at Gates County site.</b> Rain date Saturday. View Comet C/2012 S1 ISON in morning sky (mag. +9.6).
<b>FRI</b>	<b>1-Nov</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday. View Comet C/2012 S1 ISON in morning sky (mag. +6.4).
<b>FRI</b>	<b>29-Nov</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday. View Comet C/2012 S1 ISON in evening sky (mag. -5.7)
<b>FRI</b>	<b>27-Dec</b>	<b>NAS Observing Session</b> at Gates County site. Rain date Saturday. View Comet C/2012 S1 ISON in morning sky (mag. +4.2).

The above dates are proposed as our monthly observing session dates. Dates are chosen to be on a Friday close to New Moon, with some variances to avoid holidays and align with astronomical events like meteor showers. Dates are subject to change.

# Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	6	7	8	9	10	11	12	3	4	5	6	7	8	9
2	3	4	5	6	7	8	13	14	15	16	17	18	19	10	11	12	13	14	15	16
9	10	11	12	13	14	15	20	21	22	23	24	25	26	17	18	19	20	21	22	23
16	17	18	19	20	21	22	27	28	29	30	31			24	25	26	27	28		
23	24	25	26	27	28	29														
30	31																			

## Calendar

	Start	End	Category	Description
<b>1</b> Jan 2013	12:00 AM	12:00 AM	Public Holiday	New Year's Day
	12:02 AM	12:02 AM	Jup Sats	I.Ec.R
	4:55 AM	4:55 AM	Jupiter	Jupiter sets
	5:24 AM	5:24 AM	Jup GRS	GRS Transit (CML=188)
	5:47 AM	5:47 AM	Twilight	Astronomical Twilight begins
	7:19 AM	7:19 AM	Sun	Sunrise
	9:38 AM	9:38 AM	Moon	Moonset
	1:00 PM	1:00 PM	Diary	Regulus 5.6N of Moon
	2:36 PM	2:36 PM	Jupiter	Jupiter rises
	3:20 PM	3:20 PM	Jup GRS	GRS Transit (CML=188)
	5:03 PM	5:03 PM	Sun	Sunset
	6:16 PM	6:16 PM	Jup Sats	I.Tr.I
	6:35 PM	6:35 PM	Twilight	Astronomical Twilight ends
	6:59 PM	6:59 PM	Jup Sats	I.Sh.I
	8:26 PM	8:26 PM	Jup Sats	I.Tr.E
	9:11 PM	9:11 PM	Jup Sats	I.Sh.E
	9:24 PM	9:24 PM	Moon	Moonrise
<b>2</b> Jan 2013	1:00 AM	1:00 AM	Lunar Occult	Moon occults 6.7 mag. double star ZC1528(r) RX Sex
	1:16 AM	1:16 AM	Jup GRS	GRS Transit (CML=188)
	4:51 AM	4:51 AM	Jupiter	Jupiter sets
	5:47 AM	5:47 AM	Twilight	Astronomical Twilight begins
	5:54 AM	5:54 AM	Iridium Flare	CHES:Iridium 66 Flares at mag.-0.6 (Azim 339 Alt 48)
	7:19 AM	7:19 AM	Sun	Sunrise
	10:09 AM	10:09 AM	Moon	Moonset
	11:11 AM	11:11 AM	Jup GRS	GRS Transit (CML=188)
	2:32 PM	2:32 PM	Jupiter	Jupiter rises
	5:04 PM	5:04 PM	Sun	Sunset
	6:31 PM	6:31 PM	Jup Sats	I.Ec.R
	6:36 PM	6:36 PM	Twilight	Astronomical Twilight ends
	7:08 PM	7:08 PM	Iridium Flare	CHES:Iridium 25 Flares at mag.-0.5 (Azim 158 Alt 25)
	9:07 PM	9:07 PM	Jup GRS	GRS Transit (CML=188)
	10:24 PM	10:24 PM	Moon	Moonrise
<b>3</b> Jan 2013	4:47 AM	4:47 AM	Jupiter	Jupiter sets
	5:00 AM	5:00 AM	Diary	Earth at perihelion
	5:47 AM	5:47 AM	Twilight	Astronomical Twilight begins
	5:48 AM	5:48 AM	Iridium Flare	CHES:Iridium 21 Flares at mag.-8.0 (Azim 342 Alt 47)
	7:03 AM	7:03 AM	Jup GRS	GRS Transit (CML=188)
	7:19 AM	7:19 AM	Sun	Sunrise
	9:21 AM	9:21 AM	Meteor Shower	Quadrantids meteor peak (zhr=95)

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December 2012							January 2013							February 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						1	2
2	3	4	5	6	7	8	6	7	8	9	10	11	12	3	4	5	6	7	8	9	
9	10	11	12	13	14	15	13	14	15	16	17	18	19	10	11	12	13	14	15	16	
16	17	18	19	20	21	22	20	21	22	23	24	25	26	17	18	19	20	21	22	23	
23	24	25	26	27	28	29	27	28	29	30	31			24	25	26	27	28			
30	31																				

## Calendar

	Start	End	Category	Description
<b>3</b> Jan 2013	10:41 AM	10:41 AM	Moon	Moonset
	2:28 PM	2:28 PM	Jupiter	Jupiter rises
	4:04 PM	4:04 PM	Iridium Flare	CHES:Iridium 98 Flares at mag.-6.0 (AzM 148 Alt 78)
	4:58 PM	4:58 PM	Jup GRS	GRS Transit (CML=188)
	5:05 PM	5:05 PM	Sun	Sunset
	5:15 PM	5:15 PM	Sat Pass (ISS)	CHES:ISS Passes NW to S (AzM 228.8 Alt 23)
	6:37 PM	6:37 PM	Twilight	Astronomical Twilight ends
	7:56 PM	7:56 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
11:25 PM	11:25 PM	Moon	Moonrise	
<b>4</b> Jan 2013	2:20 AM	2:20 AM	Jup Sats	II.Tr.I
	2:54 AM	2:54 AM	Jup GRS	GRS Transit (CML=188)
	3:52 AM	3:52 AM	Jup Sats	II.Sh.I
	4:42 AM	4:42 AM	Jupiter	Jupiter sets
	5:47 AM	5:47 AM	Twilight	Astronomical Twilight begins
	7:19 AM	7:19 AM	Sun	Sunrise
	11:14 AM	11:14 AM	Moon	Moonset
	12:50 PM	12:50 PM	Jup GRS	GRS Transit (CML=188)
	2:23 PM	2:23 PM	Jupiter	Jupiter rises
	5:05 PM	5:05 PM	Sun	Sunset
	6:37 PM	6:37 PM	Twilight	Astronomical Twilight ends
	10:45 PM	10:45 PM	Jup GRS	GRS Transit (CML=188)
11:00 PM	11:00 PM	Diary	LAST QUARTER	
<b>5</b> Jan 2013	12:29 AM	12:29 AM	Moon	Moonrise
	4:38 AM	4:38 AM	Jupiter	Jupiter sets
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	7:19 AM	7:19 AM	Sun	Sunrise
	8:41 AM	8:41 AM	Jup GRS	GRS Transit (CML=188)
	11:49 AM	11:49 AM	Moon	Moonset
	2:19 PM	2:19 PM	Jupiter	Jupiter rises
	3:00 PM	3:00 PM	Diary	Spica 0.5N of Moon Occn
	5:06 PM	5:06 PM	Sun	Sunset
	6:37 PM	6:37 PM	Jup GRS	GRS Transit (CML=188)
	6:38 PM	6:38 PM	Twilight	Astronomical Twilight ends
6:59 PM	6:59 PM	Iridium Flare	CHES:Iridium 76 Flares at mag.-2.4 (AzM 166 Alt 29)	
8:25 PM	8:25 PM	Jup Sats	II.Oc.D	
<b>6</b> Jan 2013	12:29 AM	12:29 AM	Jup Sats	II.Ec.R
	1:34 AM	1:34 AM	Moon	Moonrise
	4:32 AM	4:32 AM	Jup GRS	GRS Transit (CML=188)
	4:34 AM	4:34 AM	Jupiter	Jupiter sets

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December 2012							January 2013							February 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
2	3	4	5	6	7	8	6	7	8	9	10	11	12	3	4	5	6	7	8	9
9	10	11	12	13	14	15	13	14	15	16	17	18	19	10	11	12	13	14	15	16
16	17	18	19	20	21	22	20	21	22	23	24	25	26	17	18	19	20	21	22	23
23	24	25	26	27	28	29	27	28	29	30	31			24	25	26	27	28		
30	31																			

## Calendar

	Start	End	Category	Description
<b>6</b> Jan 2013	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	7:19 AM	7:19 AM	Sun	Sunrise
	12:00 PM	12:00 PM	Diary	Mercury 4.7S of Pluto
	12:29 PM	12:29 PM	Moon	Moonset
	2:15 PM	2:15 PM	Jupiter	Jupiter rises
	2:28 PM	2:28 PM	Jup GRS	GRS Transit (CML=188)
	4:45 PM	4:45 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	5:07 PM	5:07 PM	Sun	Sunset
	6:39 PM	6:39 PM	Twilight	Astronomical Twilight ends
	7:00 PM	7:00 PM	Diary	Saturn 3.6N of Moon
<b>7</b> Jan 2013	12:10 AM	12:10 AM	Jup Sats	III.Oc.D
	12:24 AM	12:24 AM	Jup GRS	GRS Transit (CML=188)
	1:36 AM	1:36 AM	Jup Sats	I.Tr.I
	2:17 AM	2:17 AM	Jup Sats	III.Oc.R
	2:26 AM	2:26 AM	Jup Sats	I.Sh.I
	2:42 AM	2:42 AM	Moon	Moonrise
	3:06 AM	3:06 AM	Lunar Occult	Moon occults 6.5 mag. star ZC2119(r)
	3:31 AM	3:31 AM	Jup Sats	III.Ec.D
	3:46 AM	3:46 AM	Jup Sats	I.Tr.E
	4:29 AM	4:29 AM	Jupiter	Jupiter sets
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	7:19 AM	7:19 AM	Sun	Sunrise
	10:19 AM	10:19 AM	Jup GRS	GRS Transit (CML=188)
	11:22 AM	11:22 AM	Iridium Flare	CHES:Iridium 8 Flares at mag.-4.0 (Azm 170 Alt 34)
	1:15 PM	1:15 PM	Moon	Moonset
	1:44 PM	1:44 PM	Iridium Flare	CHES:Iridium 56 Flares at mag.-5.6 (Azm 195 Alt 39)
	2:11 PM	2:11 PM	Jupiter	Jupiter rises
	5:08 PM	5:08 PM	Sun	Sunset
	5:51 PM	5:51 PM	Jup Sats	II.Tr.E
	6:40 PM	6:40 PM	Twilight	Astronomical Twilight ends
	7:34 PM	7:34 PM	Jup Sats	II.Sh.E
	8:15 PM	8:15 PM	Jup GRS	GRS Transit (CML=188)
	10:55 PM	10:55 PM	Jup Sats	I.Oc.D
<b>8</b> Jan 2013	1:57 AM	1:57 AM	Jup Sats	I.Ec.R
	3:50 AM	3:50 AM	Moon	Moonrise
	4:25 AM	4:25 AM	Jupiter	Jupiter sets
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	6:11 AM	6:11 AM	Jup GRS	GRS Transit (CML=188)
	6:34 AM	6:34 AM	Sat Pass (ISS)	CHES:ISS Passes S to NE (Azm 131.8 Alt 25)

# Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	6	7	8	9	10	11	12	3	4	5	6	7	8	9
2	3	4	5	6	7	8	13	14	15	16	17	18	19	10	11	12	13	14	15	16
9	10	11	12	13	14	15	20	21	22	23	24	25	26	17	18	19	20	21	22	23
16	17	18	19	20	21	22	27	28	29	30	31			24	25	26	27	28		
23	24	25	26	27	28	29														
30	31																			

## Calendar

	Start	End	Category	Description
<b>8</b> Jan 2013	7:19 AM	7:19 AM	Sun	Sunrise
	2:06 PM	2:06 PM	Jupiter	Jupiter rises
	2:08 PM	2:08 PM	Moon	Moonset
	4:06 PM	4:06 PM	Jup GRS	GRS Transit (CML=188)
	5:09 PM	5:09 PM	Sun	Sunset
	6:41 PM	6:41 PM	Twilight	Astronomical Twilight ends
	8:00 PM	8:00 PM	Diary	Antares 6.0S of Moon
	8:02 PM	8:02 PM	Jup Sats	I.Tr.I
	8:54 PM	8:54 PM	Jup Sats	I.Sh.I
	10:13 PM	10:13 PM	Jup Sats	I.Tr.E
11:06 PM	11:06 PM	Jup Sats	I.Sh.E	
<b>9</b> Jan 2013	2:02 AM	2:02 AM	Jup GRS	GRS Transit (CML=188)
	4:21 AM	4:21 AM	Jupiter	Jupiter sets
	4:56 AM	4:56 AM	Moon	Moonrise
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	7:19 AM	7:19 AM	Sun	Sunrise
	11:58 AM	11:58 AM	Jup GRS	GRS Transit (CML=188)
	1:34 PM	1:34 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	2:02 PM	2:02 PM	Jupiter	Jupiter rises
	3:09 PM	3:09 PM	Moon	Moonset
	5:10 PM	5:10 PM	Sun	Sunset
6:41 PM	6:41 PM	Twilight	Astronomical Twilight ends	
8:26 PM	8:26 PM	Jup Sats	I.Ec.R	
9:53 PM	9:53 PM	Jup GRS	GRS Transit (CML=188)	
<b>10</b> Jan 2013	4:00 AM	4:00 AM	Diary	Moon at perigee
	4:17 AM	4:17 AM	Jupiter	Jupiter sets
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	5:57 AM	5:57 AM	Moon	Moonrise
	6:30 AM	6:30 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 137.0 Alt 79)
	7:00 AM	7:00 AM	Diary	Venus 2.8S of Moon
	7:08 AM	7:08 AM	Iridium Flare	CHES:Iridium 94 Flares at mag.-8.3 (Azm 340 Alt 71)
	7:19 AM	7:19 AM	Sun	Sunrise
	7:49 AM	7:49 AM	Jup GRS	GRS Transit (CML=188)
	1:58 PM	1:58 PM	Jupiter	Jupiter rises
	4:15 PM	4:15 PM	Moon	Moonset
	5:11 PM	5:11 PM	Sun	Sunset
	5:35 PM	5:35 PM	Jup Sats	I.Sh.E
5:35 PM	5:35 PM	Jup Sats	III.Sh.I	
5:45 PM	5:45 PM	Jup GRS	GRS Transit (CML=188)	



# Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 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
2	3	4	5	6	7	8	6	7	8	9	10	11	12	3	4	5	6	7	8	9		
9	10	11	12	13	14	15	13	14	15	16	17	18	19	10	11	12	13	14	15	16		
16	17	18	19	20	21	22	20	21	22	23	24	25	26	17	18	19	20	21	22	23		
23	24	25	26	27	28	29	27	28	29	30	31			24	25	26	27	28				
30	31																					

## Calendar

	Start	End	Category	Description
<b>10</b> Jan 2013	6:03 PM	6:03 PM	Iridium Flare	CHES:Iridium 62 Flares at mag.-0.2 (Azm 279 Alt 11)
	6:04 PM	6:04 PM	Iridium Flare	CHES:Iridium 74 Flares at mag.-4.8 (Azm 279 Alt 10)
	6:38 PM	6:38 PM	Iridium Flare	CHES:Iridium 20 Flares at mag.-6.9 (Azm 174 Alt 31)
	6:42 PM	6:42 PM	Twilight	Astronomical Twilight ends
	7:51 PM	7:51 PM	Jup Sats	III.Sh.E
	8:00 PM	8:00 PM	Diary	Pluto 0.3S of Moon Occn
<b>11</b> Jan 2013	3:40 AM	3:40 AM	Jup GRS	GRS Transit (CML=188)
	4:12 AM	4:12 AM	Jupiter	Jupiter sets
	5:40 AM	5:40 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 134.3 Alt 38)
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	6:51 AM	6:51 AM	Moon	Moonrise
	7:02 AM	7:02 AM	Iridium Flare	CHES:Iridium 45 Flares at mag.-5.2 (Azm 340 Alt 69)
	7:19 AM	7:19 AM	Sun	Sunrise
	8:00 AM	8:00 AM	Diary	Mercury 5.7S of Moon
	9:03 AM	9:03 AM	Iridium Flare	CHES:Iridium 33 Flares at mag.-4.2 (Azm 178 Alt 76)
	1:36 PM	1:36 PM	Jup GRS	GRS Transit (CML=188)
	1:54 PM	1:54 PM	Jupiter	Jupiter rises
	3:00 PM	3:00 PM	Diary	NEW MOON
	5:05 PM	5:05 PM	Iridium Flare	CHES:Iridium 72 Flares at mag.-5.7 (Azm 217 Alt 21)
	5:12 PM	5:12 PM	Sun	Sunset
	5:25 PM	5:25 PM	Moon	Moonset
	5:57 PM	5:57 PM	Iridium Flare	CHES:Iridium 65 Flares at mag.-5.0 (Azm 277 Alt 11)
	6:43 PM	6:43 PM	Twilight	Astronomical Twilight ends
	7:00 PM	7:00 PM	Meetings	NAS Observing Session (Gates Co., NC)
	11:32 PM	11:32 PM	Jup GRS	GRS Transit (CML=188)
<b>12</b> Jan 2013	4:08 AM	4:08 AM	Jupiter	Jupiter sets
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	6:26 AM	6:26 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 324.6 Alt 36)
	6:56 AM	6:56 AM	Iridium Flare	CHES:Iridium 20 Flares at mag.-5.9 (Azm 343 Alt 68)
	7:19 AM	7:19 AM	Sun	Sunrise
	7:39 AM	7:39 AM	Moon	Moonrise
	9:27 AM	9:27 AM	Jup GRS	GRS Transit (CML=188)
	10:23 AM	10:23 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	1:50 PM	1:50 PM	Jupiter	Jupiter rises
	5:13 PM	5:13 PM	Sun	Sunset
	5:42 PM	5:42 PM	Iridium Flare	CHES:Iridium 67 Flares at mag.-5.3 (Azm 274 Alt 14)
	6:36 PM	6:36 PM	Moon	Moonset
	6:44 PM	6:44 PM	Twilight	Astronomical Twilight ends
	7:23 PM	7:23 PM	Jup GRS	GRS Transit (CML=188)

## Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	6	7	8	9	10	11	12	3	4	5	6	7	8	9
2	3	4	5	6	7	8	13	14	15	16	17	18	19	10	11	12	13	14	15	16
9	10	11	12	13	14	15	20	21	22	23	24	25	26	17	18	19	20	21	22	23
16	17	18	19	20	21	22	27	28	29	30	31			24	25	26	27	28		
23	24	25	26	27	28	29														
30	31																			

## Calendar

	Start	End	Category	Description
<b>12</b> Jan 2013	10:46 PM	10:46 PM	Jup Sats	II.Oc.D
<b>13</b> Jan 2013	3:07 AM	3:07 AM	Jup Sats	II.Ec.R
	4:04 AM	4:04 AM	Jupiter	Jupiter sets
	5:19 AM	5:19 AM	Jup GRS	GRS Transit (CML=188)
	5:36 AM	5:36 AM	Sat Pass (ISS)	CHES:ISS Passes SW to NE (Azm 350.8 Alt 65)
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	7:19 AM	7:19 AM	Sun	Sunrise
	8:20 AM	8:20 AM	Moon	Moonrise
	1:46 PM	1:46 PM	Jupiter	Jupiter rises
	3:14 PM	3:14 PM	Jup GRS	GRS Transit (CML=188)
	5:14 PM	5:14 PM	Sun	Sunset
	6:37 PM	6:37 PM	Lunar Occult	Moon occults 7.9 mag. star SAO145483(d)
	6:45 PM	6:45 PM	Twilight	Astronomical Twilight ends
	7:45 PM	7:45 PM	Moon	Moonset
<b>14</b> Jan 2013	1:10 AM	1:10 AM	Jup GRS	GRS Transit (CML=188)
	3:23 AM	3:23 AM	Jup Sats	I.Tr.I
	3:38 AM	3:38 AM	Jup Sats	III.Oc.D
	4:00 AM	4:00 AM	Jupiter	Jupiter sets
	5:48 AM	5:48 AM	Twilight	Astronomical Twilight begins
	7:18 AM	7:18 AM	Sun	Sunrise
	8:57 AM	8:57 AM	Moon	Moonrise
	9:00 AM	9:00 AM	Diary	Neptune 5.6S of Moon
	11:06 AM	11:06 AM	Jup GRS	GRS Transit (CML=188)
	1:41 PM	1:41 PM	Jupiter	Jupiter rises
	5:15 PM	5:15 PM	Sun	Sunset
	5:32 PM	5:32 PM	Lunar Occult	Moon occults 5.8 mag. double star ZC3287(d) 51 Aqr
	5:50 PM	5:50 PM	Jup Sats	II.Tr.I
	6:22 PM	6:22 PM	Iridium Flare	CHES:Iridium 11 Flares at mag.-1.0 (Azm 183 Alt 32)
	6:46 PM	6:46 PM	Twilight	Astronomical Twilight ends
	7:46 PM	7:46 PM	Jup Sats	II.Sh.I
	8:13 PM	8:13 PM	Jup Sats	II.Tr.E
	8:50 PM	8:50 PM	Moon	Moonset
	9:01 PM	9:01 PM	Jup GRS	GRS Transit (CML=188)
	10:10 PM	10:10 PM	Jup Sats	II.Sh.E
<b>15</b> Jan 2013	12:42 AM	12:42 AM	Jup Sats	I.Oc.D
	3:56 AM	3:56 AM	Jupiter	Jupiter sets
	5:47 AM	5:47 AM	Twilight	Astronomical Twilight begins
	6:57 AM	6:57 AM	Jup GRS	GRS Transit (CML=188)
	7:12 AM	7:12 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)

# Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	6	7	8	9	10	11	12	3	4	5	6	7	8	9
2	3	4	5	6	7	8	13	14	15	16	17	18	19	10	11	12	13	14	15	16
9	10	11	12	13	14	15	20	21	22	23	24	25	26	17	18	19	20	21	22	23
16	17	18	19	20	21	22	27	28	29	30	31			24	25	26	27	28		
23	24	25	26	27	28	29														
30	31																			

## Calendar

	Start	End	Category	Description
<b>15</b> Jan 2013	7:18 AM	7:18 AM	Sun	Sunrise
	9:31 AM	9:31 AM	Moon	Moonrise
	1:37 PM	1:37 PM	Jupiter	Jupiter rises
	4:53 PM	4:53 PM	Jup GRS	GRS Transit (CML=188)
	5:16 PM	5:16 PM	Sun	Sunset
	6:16 PM	6:16 PM	Iridium Flare	CHES:Iridium 94 Flares at mag.-1.6 (Azm 182 Alt 33)
	6:17 PM	6:17 PM	Iridium Flare	CHES:Iridium 23 Flares at mag.-1.9 (Azm 185 Alt 32)
	6:46 PM	6:46 PM	Twilight	Astronomical Twilight ends
	9:51 PM	9:51 PM	Jup Sats	I.Tr.I
	9:54 PM	9:54 PM	Moon	Moonset
10:50 PM	10:50 PM	Jup Sats	I.Sh.I	
<b>16</b> Jan 2013	12:01 AM	12:01 AM	Jup Sats	I.Tr.E
	1:01 AM	1:01 AM	Jup Sats	I.Sh.E
	2:48 AM	2:48 AM	Jup GRS	GRS Transit (CML=188)
	3:51 AM	3:51 AM	Jupiter	Jupiter sets
	5:47 AM	5:47 AM	Twilight	Astronomical Twilight begins
	7:18 AM	7:18 AM	Sun	Sunrise
	8:35 AM	8:35 AM	Iridium Flare	CHES:Iridium 55 Flares at mag.-6.3 (Azm 179 Alt 85)
	10:04 AM	10:04 AM	Moon	Moonrise
	12:44 PM	12:44 PM	Jup GRS	GRS Transit (CML=188)
	1:33 PM	1:33 PM	Jupiter	Jupiter rises
	4:53 PM	4:53 PM	Iridium Flare	CHES:Iridium 65 Flares at mag.-4.8 (Azm 227 Alt 16)
	5:17 PM	5:17 PM	Sun	Sunset
	6:47 PM	6:47 PM	Twilight	Astronomical Twilight ends
	7:09 PM	7:09 PM	Jup Sats	I.Oc.D
	9:00 PM	9:00 PM	Diary	Uranus 4.5S of Moon
9:00 PM	9:00 PM	Diary	Venus 3.3S of Pluto	
10:21 PM	10:21 PM	Jup Sats	I.Ec.R	
10:40 PM	10:40 PM	Jup GRS	GRS Transit (CML=188)	
10:55 PM	10:55 PM	Moon	Moonset	
<b>17</b> Jan 2013	3:47 AM	3:47 AM	Jupiter	Jupiter sets
	5:47 AM	5:47 AM	Twilight	Astronomical Twilight begins
	7:17 AM	7:17 AM	Sun	Sunrise
	8:35 AM	8:35 AM	Jup GRS	GRS Transit (CML=188)
	10:36 AM	10:36 AM	Moon	Moonrise
	1:29 PM	1:29 PM	Jupiter	Jupiter rises
	4:54 PM	4:54 PM	Iridium Flare	CHES:Iridium 21 Flares at mag.-5.7 (Azm 264 Alt 23)
	5:18 PM	5:18 PM	Sun	Sunset
	6:28 PM	6:28 PM	Jup Sats	I.Tr.E

# Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 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					1	2	
2	3	4	5	6	7	8	6	7	8	9	10	11	12	3	4	5	6	7	8	9
9	10	11	12	13	14	15	13	14	15	16	17	18	19	10	11	12	13	14	15	16
16	17	18	19	20	21	22	20	21	22	23	24	25	26	17	18	19	20	21	22	23
23	24	25	26	27	28	29	27	28	29	30	31	24	25	26	27	28				
30	31																			

## Calendar

	Start	End	Category	Description
<b>17</b> Jan 2013	6:31 PM	6:31 PM	Jup GRS	GRS Transit (CML=188)
	6:48 PM	6:48 PM	Twilight	Astronomical Twilight ends
	7:30 PM	7:30 PM	Jup Sats	I.Sh.E
	7:39 PM	7:39 PM	Jup Sats	III.Tr.E
	9:36 PM	9:36 PM	Jup Sats	III.Sh.I
	11:52 PM	11:52 PM	Jup Sats	III.Sh.E
	11:54 PM	11:54 PM	Moon	Moonset
<b>18</b> Jan 2013	3:43 AM	3:43 AM	Jupiter	Jupiter sets
	4:00 AM	4:00 AM	Diary	Mercury superior conjunction
	4:00 AM	4:00 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	4:27 AM	4:27 AM	Jup GRS	GRS Transit (CML=188)
	5:47 AM	5:47 AM	Twilight	Astronomical Twilight begins
	7:17 AM	7:17 AM	Sun	Sunrise
	11:08 AM	11:08 AM	Moon	Moonrise
	1:25 PM	1:25 PM	Jupiter	Jupiter rises
	2:23 PM	2:23 PM	Jup GRS	GRS Transit (CML=188)
	4:50 PM	4:50 PM	Iridium Flare	CHES:Iridium 70 Flares at mag.-4.3 (Azm 231 Alt 13)
	5:19 PM	5:19 PM	Sun	Sunset
	6:49 PM	6:49 PM	Twilight	Astronomical Twilight ends
	7:00 PM	7:00 PM	Diary	FIRST QUARTER
<b>19</b> Jan 2013	12:18 AM	12:18 AM	Jup GRS	GRS Transit (CML=188)
	12:51 AM	12:51 AM	Moon	Moonset
	3:39 AM	3:39 AM	Jupiter	Jupiter sets
	5:46 AM	5:46 AM	Twilight	Astronomical Twilight begins
	7:17 AM	7:17 AM	Sun	Sunrise
	10:14 AM	10:14 AM	Jup GRS	GRS Transit (CML=188)
	11:43 AM	11:43 AM	Moon	Moonrise
	1:21 PM	1:21 PM	Jupiter	Jupiter rises
	5:20 PM	5:20 PM	Sun	Sunset
	6:01 PM	6:01 PM	Iridium Flare	CHES:Iridium 25 Flares at mag.-0.2 (Azm 194 Alt 32)
	6:50 PM	6:50 PM	Twilight	Astronomical Twilight ends
	8:10 PM	8:10 PM	Jup GRS	GRS Transit (CML=188)
<b>20</b> Jan 2013	1:10 AM	1:10 AM	Jup Sats	II.Oc.D
	1:47 AM	1:47 AM	Moon	Moonset
	3:35 AM	3:35 AM	Jupiter	Jupiter sets
	5:46 AM	5:46 AM	Twilight	Astronomical Twilight begins
	6:05 AM	6:05 AM	Jup GRS	GRS Transit (CML=188)
	7:16 AM	7:16 AM	Sun	Sunrise
	12:20 PM	12:20 PM	Moon	Moonrise

# Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 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					1	2	
2	3	4	5	6	7	8	6	7	8	9	10	11	12	3	4	5	6	7	8	9
9	10	11	12	13	14	15	13	14	15	16	17	18	19	10	11	12	13	14	15	16
16	17	18	19	20	21	22	20	21	22	23	24	25	26	17	18	19	20	21	22	23
23	24	25	26	27	28	29	27	28	29	30	31	24	25	26	27	28				
30	31																			

## Calendar

	Start	End	Category	Description
<b>20</b> Jan 2013	1:17 PM	1:17 PM	Jupiter	Jupiter rises
	4:01 PM	4:01 PM	Jup GRS	GRS Transit (CML=188)
	5:21 PM	5:21 PM	Sun	Sunset
	5:55 PM	5:55 PM	Iridium Flare	CHES:Iridium 47 Flares at mag.-7.0 (Azm 194 Alt 33)
	6:51 PM	6:51 PM	Twilight	Astronomical Twilight ends
<b>21</b> Jan 2013	12:00 AM	12:00 AM	Public Holiday	Martin Luther King holiday
	12:50 AM	12:50 AM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	1:57 AM	1:57 AM	Jup GRS	GRS Transit (CML=188)
	2:41 AM	2:41 AM	Moon	Moonset
	3:31 AM	3:31 AM	Jupiter	Jupiter sets
	5:46 AM	5:46 AM	Twilight	Astronomical Twilight begins
	7:16 AM	7:16 AM	Sun	Sunrise
	11:52 AM	11:52 AM	Jup GRS	GRS Transit (CML=188)
	1:01 PM	1:01 PM	Moon	Moonrise
	1:13 PM	1:13 PM	Jupiter	Jupiter rises
	4:20 PM	4:20 PM	Iridium Flare	CHES:Iridium 21 Flares at mag.-5.8 (Azm 256 Alt 28)
	5:22 PM	5:22 PM	Sun	Sunset
	6:52 PM	6:52 PM	Twilight	Astronomical Twilight ends
	8:14 PM	8:14 PM	Jup Sats	II.Tr.I
	9:48 PM	9:48 PM	Jup GRS	GRS Transit (CML=188)
	10:22 PM	10:22 PM	Jup Sats	II.Sh.I
	10:36 PM	10:36 PM	Jup Sats	II.Tr.E
	11:00 PM	11:00 PM	Diary	Jupiter 0.6N of Moon Occn
<b>22</b> Jan 2013	12:46 AM	12:46 AM	Jup Sats	II.Sh.E
	2:31 AM	2:31 AM	Jup Sats	I.Oc.D
	3:27 AM	3:27 AM	Jupiter	Jupiter sets
	3:34 AM	3:34 AM	Moon	Moonset
	5:45 AM	5:45 AM	Twilight	Astronomical Twilight begins
	6:00 AM	6:00 AM	Diary	Aldebaran 4.0S of Moon
	6:00 AM	6:00 AM	Diary	Moon at apogee
	6:05 AM	6:05 AM	Iridium Flare	CHES:Iridium 46 Flares at mag.-8.1 (Azm 347 Alt 51)
	7:15 AM	7:15 AM	Sun	Sunrise
	7:44 AM	7:44 AM	Jup GRS	GRS Transit (CML=188)
	1:09 PM	1:09 PM	Jupiter	Jupiter rises
	1:45 PM	1:45 PM	Moon	Moonrise
	4:14 PM	4:14 PM	Iridium Flare	CHES:Iridium 70 Flares at mag.-5.7 (Azm 255 Alt 28)
	5:23 PM	5:23 PM	Sun	Sunset
	5:39 PM	5:39 PM	Jup GRS	GRS Transit (CML=188)
	6:53 PM	6:53 PM	Twilight	Astronomical Twilight ends

# Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 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					1	2	
2	3	4	5	6	7	8	6	7	8	9	10	11	12	3	4	5	6	7	8	9
9	10	11	12	13	14	15	13	14	15	16	17	18	19	10	11	12	13	14	15	16
16	17	18	19	20	21	22	20	21	22	23	24	25	26	17	18	19	20	21	22	23
23	24	25	26	27	28	29	27	28	29	30	31	24	25	26	27	28				
30	31																			

## Calendar

	Start	End	Category	Description
<b>22</b> Jan 2013	9:27 PM	9:27 PM	Lunar Occult	Moon occults 5.3 mag. double star 765(D) 106 Tau
	11:40 PM	11:40 PM	Jup Sats	I.Tr.I
<b>23</b> Jan 2013	12:46 AM	12:46 AM	Jup Sats	I.Sh.I
	1:51 AM	1:51 AM	Jup Sats	I.Tr.E
	2:57 AM	2:57 AM	Jup Sats	I.Sh.E
	3:23 AM	3:23 AM	Jupiter	Jupiter sets
	3:35 AM	3:35 AM	Jup GRS	GRS Transit (CML=188)
	4:23 AM	4:23 AM	Moon	Moonset
	5:45 AM	5:45 AM	Twilight	Astronomical Twilight begins
	6:00 AM	6:00 AM	Iridium Flare	CHES:Iridium 49 Flares at mag.-1.2 (AzM 345 Alt 48)
	7:15 AM	7:15 AM	Sun	Sunrise
	1:05 PM	1:05 PM	Jupiter	Jupiter rises
	1:31 PM	1:31 PM	Jup GRS	GRS Transit (CML=188)
	2:34 PM	2:34 PM	Moon	Moonrise
	5:24 PM	5:24 PM	Sun	Sunset
	6:03 PM	6:03 PM	Lunar Occult	Moon occults 4.4 mag. double star 894(D) Chi 1 Ori
6:54 PM	6:54 PM	Twilight	Astronomical Twilight ends	
7:04 PM	7:04 PM	Jup Sats	II.Ec.R	
8:58 PM	8:58 PM	Jup Sats	I.Oc.D	
9:39 PM	9:39 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)	
11:27 PM	11:27 PM	Jup GRS	GRS Transit (CML=188)	
<b>24</b> Jan 2013	12:16 AM	12:16 AM	Jup Sats	I.Ec.R
	12:49 AM	12:49 AM	Lunar Occult	Moon occults 4.6 mag. double star 915(D) Chi 2 Ori
	3:19 AM	3:19 AM	Jupiter	Jupiter sets
	5:09 AM	5:09 AM	Moon	Moonset
	5:45 AM	5:45 AM	Twilight	Astronomical Twilight begins
	7:14 AM	7:14 AM	Sun	Sunrise
	9:22 AM	9:22 AM	Jup GRS	GRS Transit (CML=188)
	1:01 PM	1:01 PM	Jupiter	Jupiter rises
	3:26 PM	3:26 PM	Moon	Moonrise
	3:54 PM	3:54 PM	Iridium Flare	CHES:Iridium 14 Flares at mag.-6.1 (AzM 250 Alt 32)
	5:25 PM	5:25 PM	Sun	Sunset
	6:08 PM	6:08 PM	Jup Sats	I.Tr.I
	6:54 PM	6:54 PM	Twilight	Astronomical Twilight ends
	7:14 PM	7:14 PM	Jup Sats	I.Sh.I
7:16 PM	7:16 PM	Iridium Flare	CHES:Iridium 58 Flares at mag.-3.5 (AzM 159 Alt 33)	
7:18 PM	7:18 PM	Jup GRS	GRS Transit (CML=188)	
8:18 PM	8:18 PM	Jup Sats	I.Tr.E	
9:06 PM	9:06 PM	Jup Sats	III.Tr.I	

# Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	6	7	8	9	10	11	12	3	4	5	6	7	8	9
2	3	4	5	6	7	8	13	14	15	16	17	18	19	10	11	12	13	14	15	16
9	10	11	12	13	14	15	20	21	22	23	24	25	26	17	18	19	20	21	22	23
16	17	18	19	20	21	22	27	28	29	30	31			24	25	26	27	28		
23	24	25	26	27	28	29														
30	31																			

## Calendar

	Start	End	Category	Description
<b>24</b> Jan 2013	9:26 PM	9:26 PM	Jup Sats	I.Sh.E
	11:17 PM	11:17 PM	Jup Sats	III.Tr.E
<b>25</b> Jan 2013	1:36 AM	1:36 AM	Jup Sats	III.Sh.I
	3:15 AM	3:15 AM	Jupiter	Jupiter sets
	5:14 AM	5:14 AM	Jup GRS	GRS Transit (CML=188)
	5:44 AM	5:44 AM	Twilight	Astronomical Twilight begins
	5:48 AM	5:48 AM	Iridium Flare	CHES:Iridium 25 Flares at mag.-3.2 (AzM 349 Alt 45)
	5:52 AM	5:52 AM	Moon	Moonset
	6:52 AM	6:52 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (AzM 32.0 Alt 25)
	7:13 AM	7:13 AM	Sun	Sunrise
	12:57 PM	12:57 PM	Jupiter	Jupiter rises
	3:09 PM	3:09 PM	Jup GRS	GRS Transit (CML=188)
	4:22 PM	4:22 PM	Moon	Moonrise
<b>26</b> Jan 2013	5:26 PM	5:26 PM	Sun	Sunset
	6:45 PM	6:45 PM	Jup Sats	I.Ec.R
	6:55 PM	6:55 PM	Twilight	Astronomical Twilight ends
	7:10 PM	7:10 PM	Iridium Flare	CHES:Iridium 55 Flares at mag.-4.0 (AzM 160 Alt 33)
	1:05 AM	1:05 AM	Jup GRS	GRS Transit (CML=188)
	3:11 AM	3:11 AM	Jupiter	Jupiter sets
	5:42 AM	5:42 AM	Iridium Flare	CHES:Iridium 47 Flares at mag.-1.3 (AzM 350 Alt 44)
	5:44 AM	5:44 AM	Twilight	Astronomical Twilight begins
	6:31 AM	6:31 AM	Moon	Moonset
	7:13 AM	7:13 AM	Sun	Sunrise
	11:01 AM	11:01 AM	Jup GRS	GRS Transit (CML=188)
<b>27</b> Jan 2013	12:53 PM	12:53 PM	Jupiter	Jupiter rises
	5:19 PM	5:19 PM	Moon	Moonrise
	5:27 PM	5:27 PM	Sun	Sunset
	6:28 PM	6:28 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	6:56 PM	6:56 PM	Twilight	Astronomical Twilight ends
	8:57 PM	8:57 PM	Jup GRS	GRS Transit (CML=188)
	12:00 AM	12:00 AM	Diary	FULL MOON
	3:07 AM	3:07 AM	Jupiter	Jupiter sets
	5:43 AM	5:43 AM	Twilight	Astronomical Twilight begins
	6:48 AM	6:48 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (AzM 39.2 Alt 64)
	6:52 AM	6:52 AM	Jup GRS	GRS Transit (CML=188)
7:07 AM	7:07 AM	Moon	Moonset	
7:12 AM	7:12 AM	Sun	Sunrise	
12:49 PM	12:49 PM	Jupiter	Jupiter rises	
3:36 PM	3:36 PM	Iridium Flare	CHES:Iridium 64 Flares at mag.-5.9 (AzM 245 Alt 34)	

## Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 2013						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S
						1	6	7	8	9	10	11	12	3	4	5	6	7	8	9
2	3	4	5	6	7	8	13	14	15	16	17	18	19	10	11	12	13	14	15	16
9	10	11	12	13	14	15	20	21	22	23	24	25	26	17	18	19	20	21	22	23
16	17	18	19	20	21	22	27	28	29	30	31			24	25	26	27	28		
23	24	25	26	27	28	29														
30	31																			

## Calendar

	Start	End	Category	Description
<b>27</b> Jan 2013	4:48 PM	4:48 PM	Jup GRS	GRS Transit (CML=188)
	5:28 PM	5:28 PM	Sun	Sunset
	6:18 PM	6:18 PM	Moon	Moonrise
	6:57 PM	6:57 PM	Twilight	Astronomical Twilight ends
<b>28</b> Jan 2013	2:44 AM	2:44 AM	Jup GRS	GRS Transit (CML=188)
	3:03 AM	3:03 AM	Jupiter	Jupiter sets
	4:04 AM	4:04 AM	Lunar Occult	Moon occults 5.5 mag. double star ZC1397(R) Omega Leo
	5:43 AM	5:43 AM	Twilight	Astronomical Twilight begins
	5:57 AM	5:57 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (AzM 34.7 Alt 34)
	7:11 AM	7:11 AM	Sun	Sunrise
	7:40 AM	7:40 AM	Moon	Moonsset
	12:39 PM	12:39 PM	Jup GRS	GRS Transit (CML=188)
	12:45 PM	12:45 PM	Jupiter	Jupiter rises
	5:29 PM	5:29 PM	Sun	Sunset
	5:53 PM	5:53 PM	Jup Sats	III.Ec.R
	6:00 PM	6:00 PM	Meetings	NAS Regular Meeting at Chesapeake Public Library Major Hillard branch
	6:58 PM	6:58 PM	Twilight	Astronomical Twilight ends
	7:00 PM	7:00 PM	Diary	Regulus 5.5N of Moon
	7:17 PM	7:17 PM	Moon	Moonrise
	10:35 PM	10:35 PM	Jup GRS	GRS Transit (CML=188)
	10:39 PM	10:39 PM	Jup Sats	II.Tr.I
<b>29</b> Jan 2013	12:58 AM	12:58 AM	Jup Sats	II.Sh.I
	1:02 AM	1:02 AM	Jup Sats	II.Tr.E
	2:59 AM	2:59 AM	Jupiter	Jupiter sets
	5:07 AM	5:07 AM	Sat Pass (ISS)	CHES:ISS Passes NW to E (AzM 36.1 Alt 21)
	5:42 AM	5:42 AM	Twilight	Astronomical Twilight begins
	6:43 AM	6:43 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (AzM 225.9 Alt 40)
	7:11 AM	7:11 AM	Sun	Sunrise
	8:13 AM	8:13 AM	Moon	Moonsset
	8:31 AM	8:31 AM	Jup GRS	GRS Transit (CML=188)
	12:41 PM	12:41 PM	Jupiter	Jupiter rises
	3:17 PM	3:17 PM	Algol Minima	Algol at mag. +3.4 minimum (+/-5 hours)
	5:19 PM	5:19 PM	Iridium Flare	CHES:Iridium 76 Flares at mag.-6.5 (AzM 212 Alt 30)
	5:30 PM	5:30 PM	Sun	Sunset
	6:27 PM	6:27 PM	Jup GRS	GRS Transit (CML=188)
	6:54 PM	6:54 PM	Iridium Flare	CHES:Iridium 28 Flares at mag.-7.6 (AzM 168 Alt 37)
	6:54 PM	6:54 PM	Iridium Flare	CHES:Iridium 29 Flares at mag.-2.0 (AzM 169 Alt 37)
	6:59 PM	6:59 PM	Twilight	Astronomical Twilight ends
	8:18 PM	8:18 PM	Moon	Moonrise



# Norfolk Astronomical Society Astronomical Calendar

December 2012							January 2013							February 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					1	2	
2	3	4	5	6	7	8	6	7	8	9	10	11	12	3	4	5	6	7	8	9
9	10	11	12	13	14	15	13	14	15	16	17	18	19	10	11	12	13	14	15	16
16	17	18	19	20	21	22	20	21	22	23	24	25	26	17	18	19	20	21	22	23
23	24	25	26	27	28	29	27	28	29	30	31			24	25	26	27	28		
30	31																			

## Calendar

	Start	End	Category	Description
<b>30</b> Jan 2013	1:31 AM	1:31 AM	Jup Sats	I.Tr.I
	2:55 AM	2:55 AM	Jupiter	Jupiter sets
	4:22 AM	4:22 AM	Jup GRS	GRS Transit (CML=188)
	5:41 AM	5:41 AM	Twilight	Astronomical Twilight begins
	5:53 AM	5:53 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (AzM 225.4 Alt 85)
	7:10 AM	7:10 AM	Sun	Sunrise
	8:45 AM	8:45 AM	Moon	Moonset
	12:00 PM	12:00 PM	Diary	Jupiter stationary
	12:37 PM	12:37 PM	Jupiter	Jupiter rises
	1:47 PM	1:47 PM	Iridium Flare	CHES:Iridium 98 Flares at mag.-4.5 (AzM 202 Alt 36)
	2:18 PM	2:18 PM	Jup GRS	GRS Transit (CML=188)
	5:31 PM	5:31 PM	Sun	Sunset
	6:48 PM	6:48 PM	Iridium Flare	CHES:Iridium 32 Flares at mag.-1.7 (AzM 168 Alt 37)
	7:00 PM	7:00 PM	Twilight	Astronomical Twilight ends
	9:19 PM	9:19 PM	Moon	Moonrise
	9:43 PM	9:43 PM	Jup Sats	II.Ec.R
	10:49 PM	10:49 PM	Jup Sats	I.Oc.D
<b>31</b> Jan 2013	12:14 AM	12:14 AM	Jup GRS	GRS Transit (CML=188)
	2:11 AM	2:11 AM	Jup Sats	I.Ec.R
	2:51 AM	2:51 AM	Jupiter	Jupiter sets
	4:28 AM	4:28 AM	Lunar Occult	Moon occults 6.7 mag. star ZC1726(r)
	5:03 AM	5:03 AM	Sat Pass (ISS)	CHES:ISS Passes NW to SE (AzM 86.7 Alt 35)
	5:41 AM	5:41 AM	Twilight	Astronomical Twilight begins
	7:09 AM	7:09 AM	Sun	Sunrise
	9:17 AM	9:17 AM	Moon	Moonset
	10:10 AM	10:10 AM	Jup GRS	GRS Transit (CML=188)
	12:33 PM	12:33 PM	Jupiter	Jupiter rises
	5:33 PM	5:33 PM	Sun	Sunset
	7:00 PM	7:00 PM	Twilight	Astronomical Twilight ends
	7:59 PM	7:59 PM	Jup Sats	I.Tr.I
	8:05 PM	8:05 PM	Jup GRS	GRS Transit (CML=188)
	9:10 PM	9:10 PM	Jup Sats	I.Sh.I
	10:09 PM	10:09 PM	Jup Sats	I.Tr.E
	10:22 PM	10:22 PM	Moon	Moonrise
	11:21 PM	11:21 PM	Jup Sats	I.Sh.E