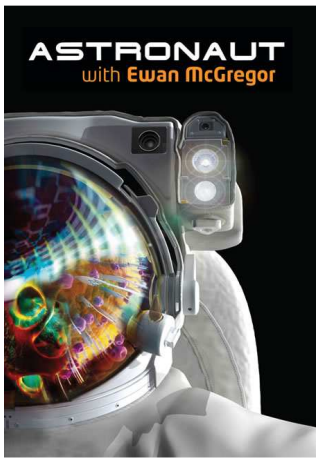
The Guide Star

Newsletter of the Amateur Astronomers Association of Pittsburgh Inc
Founded June 9, 1929 by Chester B. Roe and Leo J. Scanlon
Website: 3ap.org

February 2013 ***Volume 47, No. 2***

AAAP General Business Meeting

Friday, February 8, 2013, 19:30
Carnegie Science Center
Highlight: Planetarium Presentation of "Astronaut"



The exploration of space has been a clarion call to the explorer, the scientist and the dreamer in all of us.

But what does it take to actually journey into space? What does it take to become an astronaut?

This planetarium show takes you from Earth into space ... and beyond!

Presented in high-definition full dome digital video with explosive surround sound, "Astronaut" is an adventure unlike anything you've ever encountered.

Experience a rocket launch from inside the body of an astronaut. Explore the amazing worlds of inner and outer space, from floating around the International Space Station to maneuvering through microscopic regions of the human body.

"Astronaut" is narrated by Ewan McGregor and produced by the National Space Centre. Duration is about a half-hour.

A brief promotional video is at:

http://www.youtube.com/watch?v=1TappBJ4cG0

AAAP members should convene at the auditorium housing the Bayer Science Center Stage at 19:30. Members will then proceed to the Planetarium for the show.

A business meeting may follow.

AAAP member parking at Carnegie Science Center is $3.00.

Future General Meeting Dates & Times

March	08, 2013	7:30pm	Allegheny Observatory
April	12, 2013	8:00pm	Carnegie Science Center
May	10, 2013	8:00pm	Carnegie Science Center

Please note that the meeting times for April and May are a half-hour later than usual.

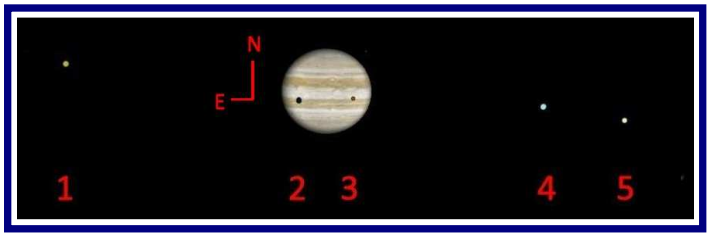
Wagman Winterfest XX

Saturday, February 16, 2013, 16:00
Wagman Observatory
Weather Permitting

Wagman Winterfest is the first event of the AAAP star party year and it's open to both members and the public.

This year, the target-rich winter constellations of Taurus, Orion, Gemini, Auriga and Canis Major will be joined by the seven day old Moon and by almost four hours of transit activity compliments of Jupiter's third largest satellite, Io.

At 18:12, Io will begin to transit Jupiter's disk. At 19:31, Io's shadow will begin crossing. Io leaves the disk at 20:24, followed by its shadow at 21:43. Later in the evening, Jupiter's Great Red Spot will cross the central meridian at 23:24.



At approximately 20:00 in the skies above this year's Winterfest Io (3) and its shadow (2) will be transiting Jupiter. Callisto (1) Europa (4) and Ganymede (5) will also be visible.

Winterfest is a chance to try out new equipment in the company of fellow members and enjoy the camaraderie that chilly weather observing seems to promote. So be sure to dress with weather conditions in mind. Bundle up and remember the grounds may be slippery.

Be aware that severe cold, heavy snow or persistent cloud cover will cause the star party to be canceled, so keep a "weather eye" on the club's Yahoo Message Group as the date draws near. For more information, go to the Winterfest web site at:

http://3ap.org/winterfest/

Or call the AAAP's Wagman Observatory at (724) 224-2510 or Wagman Winterfest Director Pete Zapadka at (412) 487-9363.

Of Club Interest

Notes from Executive Committee Meetings

Here are a few relevant notes from the past five Executive Committee meetings, in no particular order. This list does not include items that are no longer relevant (for example, planning for December party) or items presented previously through the business meetings and/or the Guide Star. If you have any questions, please contact me.

1. Created a list of Action Items and prioritized the items. There are 12 high priority items, 10 medium, and 5 low.
2. Approved purchase of a spherical planetarium system for Mingo Observatory. (The money for the system, $15000, had been raised previously for the project.)
3. Approved the insurance coverage for both observatories.
4. Approved $12000 for repairs at Wagman Observatory, primarily due to water damage.
5. Approved increased membership dues to cover increasing costs. Also approved a new fee for members who ask for a printed version of the Guide Star. The Association had been spending (approximately) $660 per year for copying and mailing it to 26 members.
6. Approved sending a letter to former members to ask them to consider rejoining the Association.
7. Approved prizes for Photo Contest: 8x10 prints of first place winners will be displayed at both observatories. After 1 year, the winner will be given one of the prints, and the other print will go to the archives.
8. We are looking into directors and officers insurance.
9. Approved a "temporary" membership card to be given to new members when they join in person (at the observatories or meeting). In part, this is to convey the feeling that "you are now a member", but also to serve as a receipt of their payment.
10. The List Server has been purged of former members.
11. Approved the creation of a "do's and don't's" list for supervising children at public functions.
12. We are looking into a policy and possible fees for local colleges and universities for using the observatories.
13. Google Drives, part of the Google Education package used for the club's email, will be used to store electronic documents.
14. Agreed to change the password to the Member's section of the website. IT will try to create a message for members to contact the Treasurer or Membership Secretary to get the updated password.
15. Updated observing forms are about ready to be rolled-out.
16. Discussed changing the By Laws to change the officer elections from May to November, with the officers taking office on January 1. After listening to input from each officer, it was decided to keep the current schedule.
17. Discussed whether the AAAP should rejoin the Astronomical League.
18. Nate Brandt, Chris Mullins, and Mike Meteney volunteered to create a comprehensive financial report.

- John Holtz, AAAP President

Observatory Director Performance Review

The Executive Committee will be reviewing the performance of the observatory directors in the near future and holding a vote of confidence. Please contact John Holtz (President) if you have any feedback on the Mingo and/or Wagman directors and associate directors.

Help with Club Website

In anticipation of increased visitors to our website because of the upcoming comets, now is a good time to give it a facelift. Everyone can help with this project by letting John Holtz (President) know what websites you like, and why, or which websites you do not like, and why. There is no need to re-invent the internet wheel.

If you would like to volunteer to help with the design (layout, color, etc), please contact John Holtz.

- John Holtz, AAAP President

AAAP Website Member Password Change

The password for the members section of the club website was changed in mid-January. Current members should contact club treasurer, Nate Brandt, or membership secretary, Don Hoecker, for the new password. The user id remains the same.

New At-Large Executive Committee Member

Mike Skowvron, who continues to do much of the club's IT and electronic work, was appointed to the AAAP Executive Committee at its January meeting. His presence is bound to inform and speed decisions to benefit the club. Welcome!

Star Party Schedule for 2013

Mingo	Wagman	Closest Phase
	Feb 16 (WWF)	First Qtr Feb 17
Apr 19-20	Apr 19-20	First Qtr Apr 18
May 17-18	May 17-18	First Qtr May 18
Jun 14-15	Jun 14-15	First Qtr Jun 16
Jul 12-13	Jul 12-13	First Qtr Jul 15
Aug 9-10	Aug 9-10	First Qtr Aug 14
Sep 7 (DS)		New Sep 5
	Sep 14	First Qtr Sep 12
	Sep 21 (MR)	Full Sep 19
Sep 28 (DS)		Last Qtr Sep 27
Oct 12	Oct 12	First Qtr Oct 11
Oct 26 (DS)	Oct 26 (DS)	Last Qtr Oct 26
Nov TBD (BUSF)		

WWF - Wagman Winterfest DS – Dark Sky
BUSF – Bundle-up Starfest MR - Moon Rise

For Observers

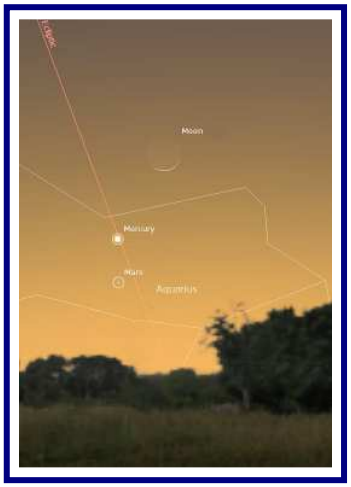
Mercury this Month

There is an often repeated statement that Copernicus never saw Mercury due to the latitude of Poland and the mists that arise from the Vistula River. Based on a mistaken inference, it's not true, but it does remind us that Mercury is the most elusive of the five naked eye planets to view. It is never possible to view it in a really dark sky and it always sets within two hours of the Sun. Consequently, many amateur astronomers have never seen it.

For us, during the first three weeks of February, Mercury will have its most favorable evening apparition (or time of maximum visibility) for 2013. On the 16th, one day before perihelion, it will reach its greatest eastern elongation at 18°.

Prior to this, on the evening of the 8th, Mercury will lay only a third of a degree from Mars.

And for those with an unobstructed view of the western horizon, on the 11th, Mercury, Mars and the young Moon will create a difficult but impressive twilight grouping.



It's approximately 18:15 on the evening of February 11. Mercury, Mars and the young Moon are grouped close to the western horizon.

By the way, on the 11th, the Moon, though young at 1.66 days or a bit under 40 hours old, is far from the youngest Moon ever seen.

For naked eye sighting, the old record was set by Julius Schmidt of Athens Observatory who saw the Moon just 15 hours and 24 minutes past new in 1871. His record was broken in 1990 by Tennessee observer John Pierce who saw the Moon at 15 hours and 1 minute.

The record for the youngest Moon viewed with optical assistance is 12 hours and 7 minutes set in 1996.

A Difficult Early Evening Occultation

On Saturday evening, February 23rd, at 17:58, the dark limb of the 13 day old Moon will occult the 4th magnitude star, alpha Cancri or Acubens. The star will disappear behind the far north lunar limb and the duration of the occultation will therefore be short. The star will reappear at 18:20.

Complicating the observation is the early evening hour and the Moon's being only a bit more than 20° off the darkening eastern horizon.

2013's Highly Anticipated Comets

While the term 'great comet' has no real scientific standing or agreed definition, it's currently being optimistically applied to two comets which will come to perihelion this year: C/2011 L4 PANSTARRS, nearest the Sun on March 10th and C/2012 S1 ISON, nearest the Sun on November 28th. But the term may be loosely applied to comets which are bright enough to catch the attention of the general public.

By this measure, four recent comets would probably qualify: Hyakutake (1996), Hale–Bopp (1997), McNaught (2007) and Lovejoy (2011).

A Note on Comet Naming Conventions: First, comets first receive a prefix and date in accord with the following table:

C/year of discovery	non-periodic comets
P/ year of determination as periodic	periodic comets
X/ year of discovery	comet with orbit impossible to calculate
D/ year of discovery	periodic comet that have disappeared, broken up, or been lost
A/ year of discovery	comet later found to be a minor planet

Next the half-month of the year in which the discovery was made is indicated by a letter in accord with the following table:

A Jan 01-15	B Jan 16-31	C Feb 01-15	D Feb 16-29	E Mar 01-15	F Mar 16-31	G Apr 01-15	H Apr 16-30
J May 01-15	K May 16-31	L Jun 01-15	M Jun 16-30	N Jul 01-15	O Jul 16-31	P Aug 01-15	Q Aug 16-31
R Sep 01-15	S Sep 16-30	T Oct 01-15	U Oct 16-31	V Nov 01-15	W Nov 16-30	X Dec 01-15	Y Dec 16-31

A number is then appended if more than one comet is discovered in the half –month period, followed by the identity of the discovering individual, observatory or group. Thus, C/2011 L4 PANSTARRS is a non-periodic comet, the fourth discovered in the first half of June 2011. Discovery is attributed to the Pan-STARRS 1 telescope.

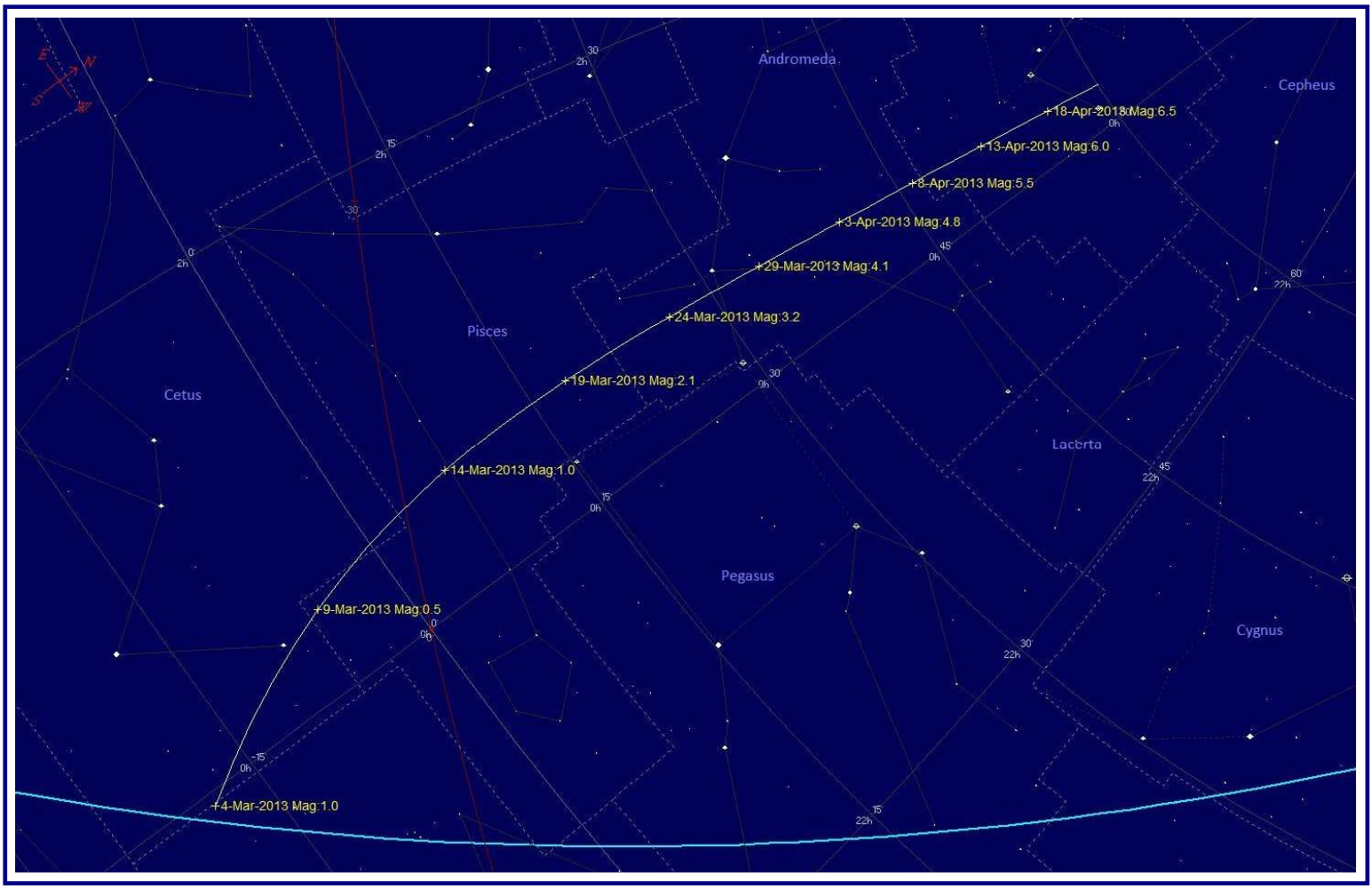
Once determined to be periodic, a number is placed before the P/ prefix to indicate its place in the roster of periodic comets. Thus Comet Halley, the first comet found to be periodic is 1P/1682 Q1, while Shoemaker-Levy 6, the 181st comet determined to be periodic is officially 181P/2006 U4.

Pan-STARRS 1

Comet C/2011 L4 PANSTARRS was discovered on CCD images by Richard Wainscoat on June 6, 2011 using the Pan-STARRS 1 telescope, a 1.8 meter (60-inch) telescope on Maui's Mt. Haleakala. The telescope went operational in 2006 and is part of the Panoramic Survey Telescope & Rapid Response System.

The comet will begin to be observable in March. It will be just on the western horizon as the Sun sets on March 5, 2013. It then increases its elevation above the horizon. The chart below shows its predicted path and magnitudes above the western horizon from March 4 through mid-April. Note: the Sun will be tracking up the ecliptic (the red line) from Aquarius through southern Pisces during this time.

As of late January, British, Japanese and American astronomers have noted that starting in December, the comet's rate of brightening has fallen short of predicted levels and initial forecasts for its maximum brightness have been revised downward to second or third magnitude. Cometary magnitude predictions are notoriously unreliable. So, cautious optimism is the order of the day.



This is Harvard Cometary Science Center data, beginning 4 March, for the comet as it swings through its perihelion passage.

Δ (delta) is distance from Earth; r is distance from the Sun. Both values are in Astronomical Units. elong is number of degrees between the comet and the Sun. m1 is visual magnitude.

Notice that the comet only achieves a 30° separation from the Sun in late March.

2013	R.A.	Decl.	Δ	r	elong	m1
03 04	23 48.96	-20 49.9	1.098	0.357	18.8	1.1
03 05	23 55.92	-18 27.2	1.097	0.342	17.9	1.0
03 06	00 02.34	-15 59.1	1.097	0.328	17.1	0.8
03 07	00 08.19	-13 26.2	1.099	0.317	16.5	0.7
03 08	00 13.41	-10 49.8	1.101	0.309	15.9	0.6
03 09	00 18.00	-08 11.1	1.105	0.304	15.5	0.6
03 10	00 21.95	-05 31.6	1.109	0.302	15.2	0.6
03 11	00 25.27	-02 52.8	1.115	0.303	15.1	0.6
03 12	00 27.99	-00 16.1	1.120	0.307	15.2	0.6
03 13	00 30.16	+02 17.2	1.127	0.314	15.5	0.7
03 14	00 31.86	+04 46.3	1.133	0.324	15.9	0.9
03 15	00 33.13	+07 10.4	1.140	0.337	16.4	1.0
03 16	00 34.05	+09 29.2	1.148	0.351	17.0	1.2
03 17	00 34.69	+11 42.5	1.155	0.367	17.7	1.3

2013	R.A.	Decl.	Δ	r	elong	m1
03 18	00 35.08	+13 50.4	1.162	0.385	18.6	1.5
03 19	00 35.29	+15 53.0	1.170	0.404	19.4	1.7
03 20	00 35.34	+17 50.6	1.178	0.424	20.3	1.9
03 21	00 35.28	+19 43.5	1.186	0.444	21.3	2.0
03 22	00 35.11	+21 32.0	1.194	0.465	22.2	2.2
03 23	00 34.88	+23 16.3	1.202	0.486	23.2	2.4
03 24	00 34.58	+24 56.8	1.210	0.508	24.2	2.6
03 25	00 34.24	+26 33.8	1.218	0.530	25.2	2.7
03 26	00 33.87	+28 07.5	1.226	0.552	26.2	2.9
03 27	00 33.47	+29 38.1	1.234	0.574	27.2	3.0
03 28	00 33.05	+31 06.0	1.242	0.596	28.2	3.2
03 29	00 32.62	+32 31.3	1.251	0.618	29.2	3.3
03 30	00 32.18	+33 54.1	1.259	0.640	30.2	3.5
03 31	00 31.73	+35 14.8	1.267	0.662	31.2	3.6

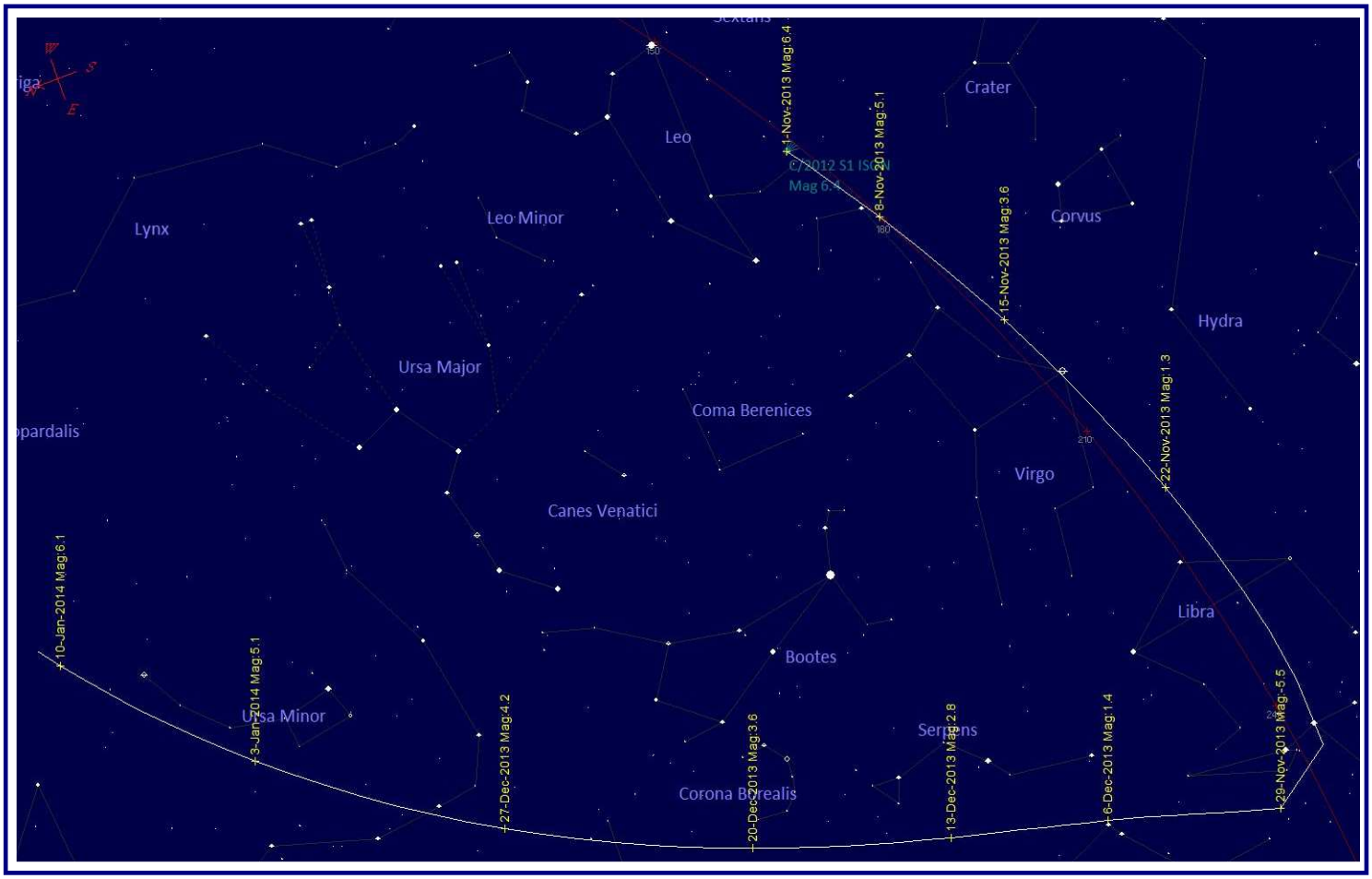
Comet C/2012 S1 ISON was discovered on CCD images taken by Vitali Nevski and ArtyomNovichonok with the .4 meter (16 inch) reflector of the International Scientific Optical Network (ISON) in Kislovodsk, Russia on September 21, 2012. The comet will be a morning object brightening in the dawn skies of October and November. It passes close to Spica on November 18. If predictions hold, it should be a naked eye object at that time.

Closing on the Sun, it becomes very bright as it rounds the Sun on November 28 and 29. On those days it might be possible to see the comet in daylight. Visually, its separation from the Sun could be as little as 1°.

After rounding the Sun, it will reappear in the morning sky in early December, but by mid-month, it will become an evening object.

It will be about 5° from the great globular M13 on December 22nd and will pass within a few degrees of Polaris in early January of 2014.

Nevski and Novichonok with the .4m ISON reflector



The chart above clearly shows the change on ISON's path as it swings around the Sun. Below is Harvard Cometary Science Center data for the comet as it swings through its perihelion passage.

2013	R.A.	Decl.	Δ	r	elong	m1	2013	R.A.	Decl.	Δ	r	elong	m1
11 20	13 48.61	-13 28.6	0.858	0.459	27.7	4.0	12 03	16 16.53	-10 12.9	0.801	0.271	12.8	2.0
11 21	14 01.69	-14 51.4	0.856	0.423	25.3	3.7	12 04	16 15.28	-08 21.1	0.771	0.315	15.2	2.4
11 22	14 15.38	-16 13.1	0.856	0.386	22.7	3.4	12 05	16 14.24	-06 30.7	0.743	0.356	17.5	2.8
11 23	14 29.70	-17 32.6	0.860	0.346	20.1	3.0	12 06	16 13.38	-04 40.2	0.716	0.395	19.9	3.1
11 24	14 44.66	-18 48.8	0.868	0.304	17.4	2.6	12 07	16 12.67	-02 48.2	0.692	0.433	22.2	3.3
11 25	15 00.34	-20 00.4	0.880	0.260	14.6	2.0	12 08	16 12.10	-00 53.9	0.668	0.468	24.5	3.5
11 26	15 16.87	-21 05.8	0.898	0.211	11.6	1.4	12 09	16 11.66	+01 03.4	0.646	0.503	26.9	3.7
11 27	15 34.61	-22 02.2	0.922	0.156	8.5	0.4	12 10	16 11.34	+03 04.4	0.625	0.536	29.3	3.8
11 28	15 54.72	-22 42.5	0.955	0.090	5.0	-1.5	12 11	16 11.13	+05 09.8	0.605	0.569	31.8	3.9
11 29	16 23.34	-20 31.7	0.985	0.022	1.3	-6.3	12 12	16 11.02	+07 20.1	0.585	0.600	34.3	4.1
11 30	16 22.04	-16 37.0	0.917	0.108	5.0	-0.9	12 13	16 11.02	+09 35.9	0.567	0.631	36.9	4.2
12 01	16 19.85	-14 12.7	0.872	0.170	7.8	0.6	12 14	16 11.12	+11 57.6	0.550	0.661	39.5	4.3
12 02	16 18.04	-12 08.6	0.834	0.223	10.4	1.4	12 15	16 11.31	+14 25.8	0.533	0.690	42.2	4.3

Δ (delta) is distance from Earth; r is distance from the Sun. Both values are in Astronomical Units. elong is number of degrees between the comet and the Sun. m1 is visual magnitude.

- Guide Star Editor

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Philosophy is written in this grand book, the universe, which stands continually open to our gaze. But the book cannot be understood unless one first learns to comprehend the language and read the letters in which it is composed. ***It is written in the language of mathematics, and its characters are triangles, circles, and other geometric figures without which it is humanly impossible to understand a single word of it; without these, one wanders about in a dark labyrinth.*** ***— Galileo Galilei, 'The Assayer'***					**1** SR:07:29 SS:17:38 MR:23:45 MS:10:00 PI:77%	**2** SR:07:28 SS:17:40 MR:***** MS:10:36 PI:67%
3  08:56 SR:07:27 SS:17:41 MR:00:52 MS:11:16 PI:57%	**4** SR:07:26 SS:17:42 MR:01:60 MS:12:03 PI:45%	**5** SR:07:25 SS:17:43 MR:03:05 MS:12:58 PI:34%	**6** SR:07:24 SS:17:44 MR:04:06 MS:14:00 PI:24%	**7** SR:07:23 SS:17:46 MR:05:01 MS:15:07 PI:15%	**8** AAAP General Business Meeting Carnegie Science Planetarium Show SR:07:21 SS:17:47 MR:05:49 MS:16:18 PI:7%	**9** SR:07:20 SS:17:48 MR:06:31 MS:17:29 PI:3%
10  02:20 Copernicus born 1473 SR:07:19 SS:17:49 MR:07:08 MS:18:39 PI:0%	**11** SR:07:18 SS:17:51 MR:07:42 MS:19:46 PI:1%	**12** SR:07:17 SS:17:52 MR:08:13 MS:20:52 PI:4%	**13** SR:07:15 SS:17:53 MR:08:44 MS:21:55 PI:9%	**14** SR:07:14 SS:17:54 MR:09:15 MS:22:57 PI:16%	**15** SR:07:13 SS:17:55 MR:09:48 MS:23:56 PI:24%	**16** Winterfest Wagman Observatory 16:00 SR:07:12 SS:17:57 MR:10:23 MS:***** PI:33%
17  15:31 SR:07:10 SS:17:58 MR:11:01 MS:00:53 PI:42%	**18** SR:07:09 SS:17:59 MR:11:43 MS:01:48 PI:52%	**19** SR:07:08 SS:18:00 MR:12:30 MS:02:39 PI:61%	**20** SR:07:06 SS:18:01 MR:13:21 MS:03:26 PI:70%	**21** SR:07:05 SS:18:02 MR:14:16 MS:04:09 PI:78%	**22** SR:07:03 SS:18:04 MR:15:13 MS:04:48 PI:85%	**23** Occultation of 4.3 mag. Acubens, alpha Cancri 17:59 SR:07:02 SS:18:05 MR:16:14 MS:05:24 PI:92%
24 SR:07:00 SS:18:06 MR:17:15 MS:05:57 PI:96%	**25**  15:26 SR:06:59 SS:18:07 MR:18:19 MS:06:29 PI:99%	**26** SR:06:58 SS:18:08 MR:19:23 MS:06:59 PI:100%	**27** SR:06:56 SS:18:09 MR:20:29 MS:07:30 PI:98%	**28** SR:06:55 SS:18:10 MR:21:36 MS:08:03 PI:95%	Times are local. SR = Sunrise, SS = Sunset, MR = Moonrise, MS = Moonset, PI = Approx. Percentage Visible Lunar Surface Illuminated Local Midnight	

AAAP Events can also be found at: https://nightsky.jpl.nasa.gov/event-list.cfm?Club_ID=675&EventEra=Future

Some Solar System Highlights

Lunar entries are listed by named phase and include maximum libration dates. Note: Values are lunar east and lunar west.
Planetary entries include Local Rise and Set Times, Magnitudes and Disk diameters in Arc Seconds on the 1st, 10th, 20th and 28th days of the month.

Date/Time		Phase	Arc
03	08:56	Last	1919
10	02:20	New	1937
17	15:31	First	1784
25	15:26	Full	1846

The Moon's Selenographic Colongitude is 152.59° at 0h UT and 155.1° at 0h local on the first day of the month. Add 12.2° each day.

Max Libration dates:

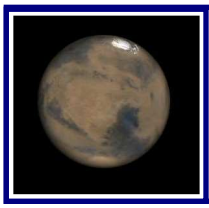
East limb on 13th (+6.0°) West limb on 25th (-5.0°)
North limb on 24th (+6.6°) South limb on 10th (-6.6°)

Date	Rise	Set	Mag	Arc
01	08:06:57	18:26:27	-1.1	5.18
10	08:04:15	19:11:03	-1.0	6.00
20	07:39:59	19:28:39	0.1	7.92
28	06:58:03	18:49:47	3.0	9.97

Mercury reaches its greatest eastern elongation on the 16th. This month sees Mercury's finest evening apparition this year.

Date	Rise	Set	Mag	Arc
01	06:51:14	16:26:53	-3.9	10.13
10	06:52:53	16:47:58	-3.9	10.00
20	06:50:12	17:12:14	-3.9	9.89
28	06:45:17	17:31:37	-3.9	9.81

Venus is low in the eastern morning vanishing into twilight by late February. It will next appear in the evening sky late in April.



Date	Rise	Set	Mag	Arc
01	08:21:22	18:59:53	1.2	4.08
10	08:03:29	19:00:43	1.2	4.04
20	07:42:48	19:01:20	1.2	4.01
28	07:25:47	19:01:34	1.2	3.98

Mars is very low in the south west as the month begins. It vanishes into the solar glare by mid-month.

Date	Rise	Set	Mag	Arc
01	12:31:05	03:10:22	-2.5	42.85
10	11:56:15	02:36:02	-2.4	41.60
20	11:18:39	01:59:25	-2.4	40.25
28	10:49:21	01:31:12	-2.3	39.21

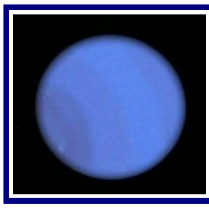
Jupiter, System II longitude is 190° this month. Located just north of the Hyades, it is well placed for observation.

Date	Rise	Set	Mag	Arc
01	00:53:50	11:28:30	0.5	17.01
10	00:19:23	10:53:50	0.5	17.27
20	23:36:19	10:14:51	0.5	17.56
28	23:04:21	09:43:19	0.4	17.79

Saturn in Libra, rises near midnight. It begins to retrograde on the 19th. The ring system, which we will continue to view from the north until 2025, will inclined to our line of sight by about 18° until October when it will begin to open to an eventual 22° by year's end.

Date	Rise	Set	Mag	Arc
01	09:45:28	22:00:32	5.9	3.39
10	09:10:56	21:27:03	5.9	3.38
20	08:32:41	20:50:07	5.9	3.36
28	08:02:10	20:20:42	5.9	3.35

Uranus in Pisces, sets mid-evening.



Date	Rise	Set	Mag	Arc
01	08:25:40	19:11:42	8.0	2.17
10	07:51:07	18:38:00	8.0	2.16
20	07:12:45	18:00:36	8.0	2.16
28	06:42:04	17:30:40	8.0	2.16

Neptune is not visible this month. It is in conjunction with the Sun on the 21st.

Jupiter Activity: Satellites & the Great Red Spot

Following are times for Jovian satellite transits and occultations and Great Red Spot meridian crossings for the current month that are visible in our area.

They are organized by observing sessions beginning with the first event of interest on a given evening and continuing to Jupiter's setting or the Sun rising.

The codes following the entries indicate what is currently happening, for example, T indicates a satellite transit, S indicates a shadow transit, ST indicates both a satellite and a shadow are transiting, STT indicates one shadow and two satellites are in transit. All times are local.

January

31 19:58 Io : Transit Begins T
20:08 GRS: Crosses CM
21:11 Io : Shadow Transit Begins ST
22:09 Io : Transit Ends S
23:23 Io : Shadow Transit Ends

February

1 00:51 Gan: Transit Begins T

1 20:40 Io : Eclipse ends
2 01:56 GRS: Crosses CM

2 17:51 Io : Shadow Transit Ends
2 21:48 GRS: Crosses CM

3 17:39 GRS: Crosses CM

4 19:36 Gan: Eclipse begins
4 21:53 Gan: Eclipse ends
4 23:27 GRS: Crosses CM
5 01:06 Eur: Transit Begins T

5 19:18 GRS: Crosses CM

6 19:22 Eur: Occultation begins
6 21:48 Eur: Occultation ends
6 21:55 Eur: Eclipse begins
7 00:22 Eur: Eclipse ends
7 00:41 Io : Occultation begins
7 01:05 GRS: Crosses CM

7 20:57 GRS: Crosses CM
7 21:50 Io : Transit Begins T
7 23:06 Io : Shadow Transit Begins ST
8 00:02 Io : Transit Ends S
8 01:18 Io : Shadow Transit Ends

8 19:09 Io : Occultation begins S
8 19:18 Eur: Shadow Transit Ends
8 22:36 Io : Eclipse ends

9 18:30 Io : Transit Ends S
9 19:47 Io : Shadow Transit Ends
9 22:36 GRS: Crosses CM

10 18:27 GRS: Crosses CM

11 18:25 Gan: Occultation begins
11 20:40 Gan: Occultation ends
11 23:37 Gan: Eclipse begins
12 00:14 GRS: Crosses CM
12 01:55 Gan: Eclipse ends

12 20:06 GRS: Crosses CM

13 21:55 Eur: Occultation begins
14 00:22 Eur: Occultation ends
14 00:34 Eur: Eclipse begins
14 01:53 GRS: Crosses CM

14 21:45 GRS: Crosses CM
14 23:43 Io : Transit Begins T
15 01:02 Io : Shadow Transit Begins ST
15 01:55 Io : Transit Ends S

15 19:19 Eur: Transit Ends
15 19:28 Eur: Shadow Transit Begins S
15 21:02 Io : Occultation beginsS
15 21:54 Eur: Shadow Transit Ends
16 00:31 Io : Eclipse ends

16 18:12 Io : Transit Begins T
16 19:31 Io : Shadow Transit Begins ST
16 20:24 Io : Transit Ends S
16 21:43 Io : Shadow Transit Ends
16 23:24 GRS: Crosses CM

17 19:00 Io : Eclipse ends
17 19:15 GRS: Crosses CM

18 22:18 Gan: Occultation begins
19 00:35 Gan: Occultation ends
19 01:02 GRS: Crosses CM

19 20:54 GRS: Crosses CM

21 00:30 Eur: Occultation begins

21 22:33 GRS: Crosses CM
22 01:38 Io : Transit Begins T
22 18:24 GRS: Crosses CM
22 19:26 Eur: Transit Begins ST
22 20:05 Gan: Shadow Transit Ends T
22 21:53 Eur: Transit Ends
22 22:04 Eur: Shadow Transit Begins S
22 22:56 Io : Occultation begins S
23 00:30 Eur: Shadow Transit Ends

23 20:07 Io : Transit Begins T
23 21:27 Io : Shadow Transit Begins ST
23 22:19 Io : Transit Ends S
23 23:39 Io : Shadow Transit Ends
24 00:12 GRS: Crosses CM

24 19:00 Eur: Eclipse ends
24 20:03 GRS: Crosses CM
24 20:55 Io : Eclipse ends

25 18:08 Io : Shadow Transit Ends

26 21:42 GRS: Crosses CM

28 23:21 GRS: Crosses CM

AAAP Welcomes New Members

JOHN CUBIC
MARY LOU CUPP
JIM FAZIO
SEAN HANDERHAN
KELLY MARUCA
DAVID NAMISNAK
BRENDAN SCHOLLAERT
TYLER SHUFELT
EDWARD WEHRLE

ROBERT ANGELONE
BURT CIFRULAK

Membership Information

AAAP Member Dues:	$ 30.00
Student Membership (K-12 & full time college student):	$ 20.00
Family Membership	$ 45.00

Basic Procedure for Paying Dues:

1. Make check payable to "AAAP Inc."
2. Send check to: Nate Brandt, Treasurer
   2520 Campmeeting Rd.
   Sewickley, PA 15143-9104

Membership Renewal Form can be found at:

http://www.3ap.org/AAAP_Mem_RenForm_2013.pdf

New Membership Form can be found at:

http://www.3ap.org/AAAP_New_MemForm_2013.pdf

Guide Star Submissions:

All AAAP members are encouraged to submit items to the club newsletter. Articles, images, observations, notices, ads, book, software and equipment reviews, all are welcome.

The Guide Star is posted online at month's end to both the club web site and the file section of the Yahoo Group AAAPgh.

Please submit items as early as possible for inclusion in the coming issue. Forward submissions or questions to:

Amateur Astronomers Association Of Pittsburgh, Inc

Executive Committee

2012-2013 Elected Officers

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