

The Mason-Dixon Astronomer



January Meeting:

- Wed., Jan. 8th –
7:30 pm
Bear Branch Nature
Center
- **Business Meeting/
Elections**
Yearly business
meeting and officer
elections.

Officer Nominations:

Nominations for
elected officers can
now be made in
advance via e-mail.
More information can
be found on page 2 in
the meeting
information.

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St*r Points

Jupiter in January and Some Tips for New Telescope Owners

January 2014 – Curt Roelle

It's time to once again look ahead at the new year and the events we can expect in the celestial sphere. Got a new telescope for Christmas? Read on for some advice on preparing it for use that can save time and frustration.

First, a bit of old news – a final word on Comet Ison. The comet did not survive its brush near the sun on Thanksgiving Day. The comet disintegrated as it approached perihelion. There was no reemergence of the comet and no stunning tail. Had it survived, Comet Ison would pass just four degrees from Polaris, the north star, on January 7, and would have been visible all night long.

The "Old Farmer's Almanac" appears to have got it right regarding Ison: "*This Icarus may be completely wrecked before it even reaches perihelion. That is the great unknown.*"

Jupiter dominates in January with opposition (opposite in direction from us as the sun) on the 5th. The king of planets rises early and remains up all night. Currently in Gemini, Jupiter forms a striking triangle with the twins' main stars Castor and Pollux throughout the month. At midnight the trio floats high overhead. Even a small telescope using a low power eyepiece will reveal the four bright "Galilean" satellites or moons. Their names are Io, Europa, Ganymede, and Callisto.

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President's Message

January 2014 - Vanessa Thomas

Happy New Year!

I hope everyone had a lovely holiday season and that the new year brings lots of happy, exciting things. With a new year comes new hopes, new resolutions, and a new set of WASI officers. At the January meeting, we'll be electing a new cast of officers who will lead our club for the next twelve months. But before that happens, we need a few volunteers to put their name in the hat who are willing to do a little more and dedicate a little extra time to help the club become even better than it is today.

If you'd like to nominate yourself or someone else for president, vice president (1 & 2), secretary, or treasurer, we will be accepting nominations both at the January meeting and in advance via email. You can email your nominations to the board of directors using the e-mail address board@westminsterastro.org. Any nominations made must be accepted by the nominee in order to appear on the ballot, so you might want to check with your nominee first to find out whether he or she would accept your nomination.

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January Meeting – Yearly Business Meeting

Our January meeting is reserved for club business! I promise...it is not as bad as you think. In fact, this has been a favorite meeting of many. While we generally don't have any special speakers or topics, the meeting is usually quick and we get to spend a bit more time talking informally. Many years there have been some informal observing reports and, if we are really lucky, they might even open up the planetarium.

This is also the meeting where we hold elections for our officers. Nominations will be sought for each of the elected offices. This includes President, Vice President (1st and 2nd), Secretary, and Treasurer. New this year, you may submit nominations by e-mail.

E-mail nomination information:

1. Send nominations to board@westminsterastro.org. Only the members of the board of directors will see the nominations.
2. Copy or contact the person you are nominating.
3. The person being nominated MUST accept the nomination. They can do this by sending an acceptance to the same e-mail address above or verbally at the meeting.
4. Anyone nominated who does not accept, either by e-mail or in person will be removed from the ballot at the meeting – no exceptions.
5. All e-mail nominations, which are accepted by the nominee, will be seconded, as a group at the meeting, by a member of the board of directors.

Hope to see everyone there!

Upcoming Events From Our Calendars

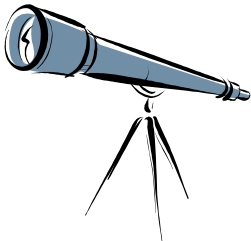
- ❖ **Monthly Meeting** January 8th, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Planetarium Show** January 11th, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Soldiers Delight Public Stargazing** January 11th, 8 p.m., at Soldiers Delight Natural Environment Area in Owings Mills

Join The Westminster Astronomical Society...

Joining WASI gives you a great opportunity to meet fellow astronomers and provides group memberships to the [Astronomical League](#) and the [International Dark-Sky Association](#). Additionally, benefits include access to our [Library](#) (over 500 astronomy-related books), the ability to borrow [club scopes](#), a subscription to the Astronomical League's *Reflector*, access to members-only observing sessions and sites, and club discounts on astronomical magazine subscriptions.

Membership is still only \$25 per year.

<http://www.westminsterastro.org>



St*r Points for January...

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The configuration of the moons changes almost hourly. An online application for tracking their movements is available at skyandtelescope.com, Sky & Telescope magazine's web site. Just look for the "Jupiter's Moons" link (registration required). Enter the observation date and time as Universal Time (UT). To compute UT simply add 5 hours to Eastern Standard Time (4 hours for daylight "savings" time). The application simulates the appearance of Jupiter and its labeled satellites in a telescope.

Here are some upcoming events for 2014 visible from our area as found in Guy Ottewell's [Astronomical Calendar](#).

For early risers Venus will shine prominently in the morning sky in February and March.

Two total lunar eclipses are visible -- on the night of April 14-15 and another in the early morning hours on October 8. A partial solar eclipse is visible at sunset on October 23.

Mars is best placed for telescopic viewing in April. Unfortunately, it will be lackluster due to its distance from us and low elevation in the sky.

Mercury is best place for viewing after sunset in May. Likewise, Saturn is best placed for viewing all night long in May.

An unusual highlight worth keeping an eye on occurs in October. Comet C/2013 A1 (Siding Spring) and the planet Mars will have a close encounter with a small chance of the two bodies colliding.

Now let's turn to hardware. Is there a new telescope in your house this year, or an old unused one (that's hopefully packed neatly away somewhere and not out collecting damaging dust and grime)? One of the biggest frustrations of novice telescope users is trying to locate even bright objects using a misaligned telescope system. A few moments of preparation could prevent discouragement and save the telescope from being banished to a closet, basement, or worse.

Often telescopes are equipped with a "finder 'scope" -- a small miniature telescope mounted onto the side and parallel to the main telescope. As the name suggests, this tiny telescope's purpose is to help find or locate objects for viewing with the bigger telescope. But when the telescopes aren't in alignment it becomes an almost impossible task that could have been avoided.

Most "finders" are equipped with a crosshair reticle. The goal is that when a target object is centered at the intersection of the crosshair, said object will be simultaneously visible in the field of the main telescope equipped with a low power eyepiece. If that is not the case, then your finder may be out of alignment.

Take your telescope outside during the day when you can see what you're doing. Look around for an object at least a quarter mile away. Tips of church steeples or the tops of power poles work well. At night you can use a distant streetlight.

Insert the lowest power eyepiece into the main telescope. Locate, center and focus on the object you selected. Then lock both telescope axes. Make sure the object is still centered in the eyepiece. Repeat if necessary.

Moving to the finder scope as gently as possible without bumping the main telescope, adjust the small set screws, loosening and tightening them until the object is centered in the finder's crosshair. Tighten down the screws.

The object should now be centered in both finder and main telescope. If not, then re-center in the main telescope and repeat the process.

Once you get good at it, this adjustment should become quick and natural, taking only seconds to complete. By that time you can probably do it quickly at night using a bright star or planet.

Here is how to use your finder during an observation. First, insert the lowest power eyepiece in your main telescope. This is true when you're starting out for the evening or when switching from one object to another.

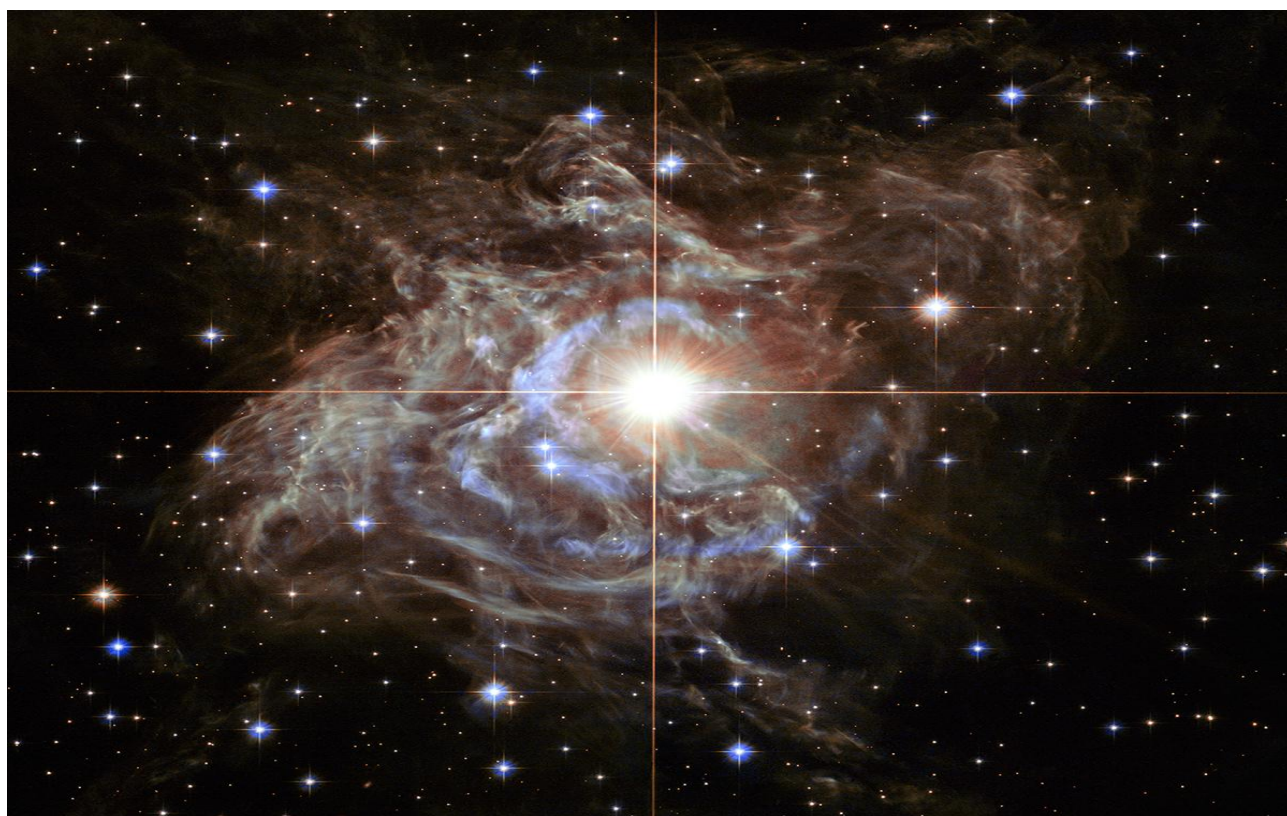
Unlock the lock knobs on the axes of your telescope while keeping control over the telescope with your other hand. While moving the telescope, sight through the finder until the target object can be seen in it. Center it on the crosshair and then relock the knobs on the axes.

Now, when you look in the eyepiece of your main telescope the object should be in the field of view. Adjust telescope to center the object. If you want to increase the magnification, replace the eyepiece with one that has more power.

President's Message

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If you missed it last month, Hubble's holiday offering was a beautiful image of the variable star RS Puppis and its dusty surroundings.



As the star brightens periodically, it sends flashes of light into its environs, lighting up the dust around it. There is a pretty cool animation, made from Hubble images, that shows this. Check it out at <http://hubblesite.org/newscenter>.

If there are any social media users reading this who are interested in a behind-the-scenes tour of NASA's Goddard Space Flight Center to learn more about the upcoming James Webb Space Telescope, there will be a “NASA Social” at Goddard on January 22nd that anyone who is at least 18 years old with a social media account can register for. Time is short, though — registration ends on January 3rd. And only a limited number of people will be selected. If you're interested, you can learn more and register at www.nasa.gov/connect/social . Good luck!

Wishing you all a wonderful 2014!

Vanessa

Arizona Science and Astronomy Expo

Steve Conard

I had the chance to spend a day at the Arizona Science and Astronomy Expo in November. This was the second year of this show, which was organized by Alan Traino who had previously organized NEAF. The expo was held on November 16 and 17 at the Tucson Convention Center, in Tucson, Arizona. It was preceded by a 2 day astrophotography seminar.

The meeting hall was much smaller than the field house that NEAF uses, and this resulted in narrower aisles and generally smaller booth space and displays. In my estimation it was about half the size of NEAF, in both area and number of vendors. I was told that it is similar to what NEAF was 10 years ago. I was there on a weather perfect Sunday, and the attendance seemed fairly light. Vendors told me that Saturday was more crowded.

The show had a western focus, with many of the smaller vendors from the west coast, and fewer of the eastern vendors than would be at NEAF. Gary Hand, of our local Hands On Optics in Damascus, was in attendance with a booth at the front of the hall.

A solar star party was held outside under perfect conditions, and we were treated to some great views of the active sun with large Hydrogen-alpha telescopes.

As far as products go, it seems like the emphasis for the big-budget items was on large equatorially mounted reflectors, with impressive displays by Planewave Instruments and Starizona of their large corrected Dall-Kirkhams. Not so prevalent were large Dobsonians, which had dominated NEAF in past years. Imaging remains front and center, with all the big-name camera manufacturers in attendance with their most recent releases.

An impressive array of speakers was at the expo, including Story Musgrave, Timothy Ferris, and Emily Lakdawalla. I attended Lakdawalla's talk, and was impressed with the depth of her knowledge on current planetary missions and her enthusiasm. There were panel discussions as well as a night sky program at the Arizona Sonora Desert Museum. Tours of the Stewart Mirror Lab were available, and I will report on my visit there in a separate article.



ASAE Exhibit Hall



ASAE Solar Star

APOD PDF 2014 Calendar Available...

Astronomy Picture of the Day - <http://apod.nasa.gov/apod/astropix.html>
by geckzilla » Mon Nov 18, 2013

The 2014 APOD fan-assembled calendar is now available for download and printing in PDF format (31.5 MB) from the link at the bottom of this post. Note there is a smaller file (4.5 MB) if you wish to preview the calendar.

Designed for 8.5" x 11" paper (landscape orientation), the calendar is easily printable. For best printed results, print it double-sided in color on bright white light card stock or 24-lb paper with a spiral or comb (GBC) binding and punch a hole for hanging; many local printing shops (Staples, Kinkos, etc.) offer binding services. Containing recent APOD images, the calendar makes a great inexpensive holiday present!

Since the calendar is in PDF, it can be viewed on devices such as the Kindle and many e-readers.

The 2014 calendar has the following improvements over last year's:

- Moon phases in both northern and southern hemisphere editions
- Annotations for eclipses, meteor showers peaks, conjunctions, oppositions, solstices, equinoxes, perihelion and aphelion
- APOD explanations for each image
- Previous year's APODs as watermarks in each calendar day cell
- All images are hyperlinks to their respective APOD pages when viewing the calendar digitally
- 2015 & 2016 mini calendars on the last two pages

Please note that all dates/times are UTC so some moon phases may seem as if they are one day off. Also please remember that best viewing of meteor showers may not be on the peak nights due to moonlight.

The last page of the PDF appears upside-down; this is deliberate. When printed, this page serves as the back cover of the calendar and allows one to see thumbnails of all the images in the calendar in the correct orientation (in relation to the front cover).

Calendar download links:

If you are from the northern hemisphere, you will want this version:

[Northern Hemisphere - Standard](#)

Or this one, which has larger calendar dates:

[N. H. - Larger Calendar Dates](#)

If you are from the southern hemisphere, you will want this one:

[Southern Hemisphere - Standard](#)

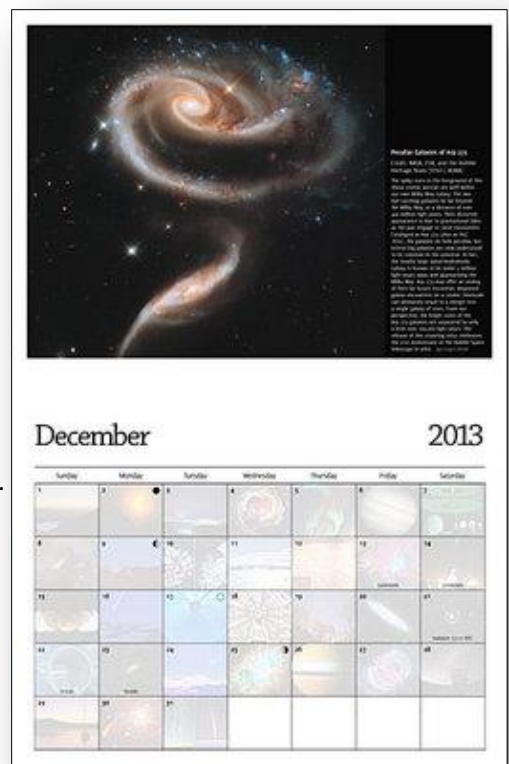
A smaller file for preview purposes is here. Please do not print it.

It will look bad and baby kittens and puppies will cry if you print this one.

[Smaller Review Version](#)

Link to Starship Asterisk Board Posting:

<http://asterisk.apod.com/viewtopic.php?f=28&t=32474>





The Big Picture: GOES-R and the Advanced Baseline Imager

By Kieran Mulvaney

The ability to watch the development of storm systems – ideally in real time, or as close as possible – has been an invaluable benefit of the Geostationary Operational Environmental Satellites (GOES) system, now entering its fortieth year in service. But it has sometimes come with a trade-off: when the equipment on the satellite is focused on such storms, it isn't always able to monitor weather elsewhere.

“Right now, we have this kind of conflict,” explains Tim Schmit of NOAA’s National Environmental Satellite, Data, and Information Service (NESDIS). “Should we look at the broad scale, or look at the storm scale?” That should change with the upcoming launch of the first of the latest generation of GOES satellites, dubbed the GOES-R series, which will carry aloft a piece of equipment called the Advanced Baseline Imager (ABI).

According to Schmit, who has been working on its development since 1999, the ABI will provide images more frequently, at greater resolution and across more spectral bands (16, compared to five on existing GOES satellites). Perhaps most excitingly, it will also allow simultaneous scanning of both the broader view and not one but two concurrent storm systems or other small-scale patterns, such as wildfires, over areas of 1000km x 1000km.

Although the *spatial* resolution will not be any greater in the smaller areas than in the wider field of view, the significantly greater *temporal* resolution on the smaller scale (providing one image a minute) will allow meteorologists to see weather events unfold almost as if they were watching a movie.

So, for example, the ABI could be pointed at an area of Oklahoma where conditions seem primed for the formation of tornadoes. “And now you start getting one-minute data, so you can see small-scale clouds form, the convergence and growth,” says Schmit.

In August, Schmit and colleagues enjoyed a brief taste of how that might look when they turned on the GOES-14 satellite, which serves as an orbiting backup for the existing generation of satellites.

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“We were allowed to do some experimental imaging with this one-minute imagery,” Schmit explains. “So we were able to simulate the temporal component of what we will get with ABI when it’s launched.”

The result was some imagery of cloud formation that, while not of the same resolution as the upcoming ABI images, unfolded on the same time scale. You can compare the difference between it and the existing GOES-13 imagery here:

http://cimss.ssec.wisc.edu/goes/blog/wp-content/uploads/2013/08/GOES1314_VIS_21AUG2013loop.gif

Learn more about the GOES-R series of satellites here: <http://www.goes-r.gov>.

Kids should be sure to check out a new online game that’s all about ABI! It’s as exciting as it is educational. Check it out at <http://scijinks.gov/abi>



The Advanced Baseline Imager. Credit: NOAA/NASA.