

# The Mason-Dixon Astronomer



## St\*r Points

### When Saturn Last Met the Scorpion

June 2015 – Curt Roelle

Three major planets span the soaring late spring summer sky horizon-to-horizon from northwest to southeast. They are, in order of their setting, Venus, Jupiter, and Saturn.

High in the west around 9 p.m. in early June, at the end of civil twilight. Venus is the brightest “star” and it dazzles about 1/3 of the way up from the horizon to the zenith point overhead. As it sinks toward the horizon it simultaneously slides northward, setting about 2 ½ hours later. In a telescope Venus shows phases – like the moon. Venus currently appears half full.

Slightly fainter Jupiter is located to Venus’ upper left in evening twilight. The planet follows and sets about 40 minutes later than Venus.

At 9 p.m. Saturn may be found rising low in the southeast where it is about 2/3 as high in the sky as Venus though significantly fainter. Saturn continues rising higher as the surrounding stars become visible to the unaided eye in darkening twilight. Thirty minutes later, halfway between Saturn and the horizon is the heart of the scorpion itself – the bright star Antares. Between Antares and Saturn are the stars that make up the scorpion’s head in the constellation Scorpius.

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## Pre-Meeting Dinner

- Wed., June 10<sup>th</sup> – 6pm.
- Harry's Main Street Grill  
65 W Main Street  
Westminster, MD 21157

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## President's Message

June 2015 – Tony Falletta

Greetings Fellow Astronomers,

June is upon us bringing many nights of warm comfortable temperature to get in some nice amateur astronomy. Each night I've had the opportunity get in my astronomy time, I've taken the time to make sure each one of my telescopes (I have 4) is ready to go. This means verifying the optics are clean, my toolbox of eyepieces, filters, counterweights and assorted other equipment is inventoried and organized. I also take the required time to collimate the mirrors on my reflectors. In addition to using my Cheshire and collimation cap I used my laser collimator. A check of that revealed it in itself was out of collimation so I added laser collimator collimation on my list of things to do. All said and done, this maintenance is both needed and especially rewarding when peering through the eyepiece. I also make sure I have a list of targets I want to find and explore.

In observatory news we are edging closer to an official opening. Some of our membership has done the required training and the telescope has gone through a nice shakedown but the U&O has been delayed by ramp access to the handicap parking space and the parking space itself. They both must be concrete with the ramp having no more than a 2% grade. This task is the responsibility is the County. A small series of missteps has had this delayed beyond the initial timeframe. Through communication and coordination with the Carroll County Dept. of Rec and Parks, several WASI members stepped forward to help with an unexpected funding issue so to complete this last step. For those members that contributed I cannot thank you enough. This joint effort will enable the project to finally be completed. As of this writing we are hoping to see the U&O by the end of May or beginning of June. Once done expect to see or hear of a scheduled ribbon cutting ceremony for an official dedication of the Blaine F. Roelke Observatory.

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## June Meeting – Guest Speaker



**Steve Conard**, Optical Systems Engineer – Johns Hopkins Applied Physics Laboratory

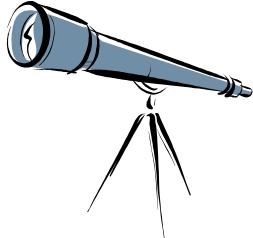
### "Building the New Horizons LORRI Imager: A 20 cm Ritchey-Chretien for Pluto"

Ever wonder how instruments used on spacecraft are built? Steve Conard, lead engineer for the New Horizons LORRI (LOng Range Reconnaissance Imager) instrument, will make a presentation on how LORRI was fabricated and tested. He will also give general background information on the New Horizons missions to Pluto, and show images collected during the flyby of Jupiter in 2007 and early Pluto approach images collected in recent weeks.

#### Bio:

Steve Conard is an optical systems engineer for the Johns Hopkins University Applied Physics Laboratory in Laurel, Maryland. He has developed hardware for space missions for over 30 years. His enjoyment for telescope making as a teenager led him to a career in optics. He remains an amateur astronomer, concentrating on asteroid occultation timing.

## Upcoming Events From Our Calendars



- ❖ **Monthly Meeting** June 10<sup>th</sup>, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Soldiers Delight Public Stargazing** June 13<sup>th</sup>, 8 p.m., at Soldiers Delight Natural Environment Area in Owings Mills
- ❖ **Planetarium Show** June 27<sup>th</sup>, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Members Observing** June TBD, Sunset., at Bear Branch Nature Center (BBNC) - See the article on page 3 for more information.

## 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.

**Adult Membership is still only \$25 per year.**



### NEW THIS YEAR – JUNIOR MEMBERSHIP

Yearly Membership For Anyone Under 18 Is Now Just \$5!  
(YES...JUST FIVE DOLLARS!)

<http://www.westminsterastro.org>



## St\*r Points for June...

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On a recent night while gazing up at Saturn near Scorpius there arose a recollection of a similar sight when, in its 29-year-long orbital path, Saturn had last adorned the scorpion. It was in 1986 and I was in Peru [on an expedition](#) with the Astronomical League (AL) for the principal purpose of viewing the famous Comet Halley. We had criss-crossed Peru by jet airplane, train, and bus to reach spectacular locations from which to view the velvety dark night sky from both high desert and soaring mountain locations. The observing sites ranged from an 18<sup>th</sup> century Spanish mill to protected ruins, including Puca Pucara and Machu Picchu, from where the Incan civilization enjoyed the same stunning views of stellar spectacles centuries earlier.

Despite its beauty, Peru was a troubled nation politically. The communist *Sendero Luminoso* or "Shining Path" guerrilla insurgents conducted brutal rural terrorism attacks in an attempt to foster revolution and to advance their Maoist agenda. *Tupac Amaru*, a pro-Cuban leftist organization, was terrorizing the city of Lima through a violent bombing campaign. The military imposed a [nighttime curfew in Lima](#) which, by the time of the expedition, authorized the military to shoot-on-sight curfew violators.

On the last night in Peru I had set up a small portable "telescopio" that I had carried from home in the open courtyard of an upper floor hotel suite in downtown Lima. The street below was a vibrant buzz of people and vendors. As the curfew time approached I moved away from the eyepiece and leaned over the railing, to peer down instead of up. Street venders were folding their stalls and pedestrian traffic was thinning quickly. Immediately before curfew the stragglers were now moving very hastily as they pushed their carts along and scurried out of sight. Once the curfew began, a lone taxi roared down the street, swerving around an individual that had jumped in front in a desperate effort to hail a ride, and disappeared in the distance. Suddenly, the previously bustling street was empty and still as a tomb. Above the city, Saturn and the scorpion stood over the empty street. Then came the occasional staccato bursts of gun fire echoing through the hollow streets.

Several months after returning home I read about a carload of amateur astronomers from the Asociacion Peruana de Astronomia (A.P.A.) who were returning from a star party outside of Lima. The A.P.A. were domestic hosts for our expedition and it was they who had arranged our viewing sites and would observe with us. Unfortunately, this returning group arrived in Lima during curfew and all were shot dead. We don't realize how lucky we are to be living in a country where we can freely move about day or night without fear.

As far as Saturn goes, it will remain well placed for viewing for the next couple of months. In a telescope the rings are always a breathtaking sight. The rings are tilted wide open and will be easy to view at any magnification. In terms of viewing pleasure, Saturn never disappoints.

If you don't have a telescope you can attend upcoming June star parties sponsored by the Westminster Astronomical Society on Saturday the 13<sup>th</sup> at Soldiers Delight nature center, or the 27<sup>th</sup> at Bear Branch nature center. Check the calendar on the web site at [westminsterastro.org](#) for times. Hopefully, no curfews will be in effect.

## Member's Observing Night

Our member's observing night for May was held on 9th. Four members attended. We used the observatory C-14 to view a variety of targets, and two member's brought their own telescopes to the event. The highlight of the evening was observing four planets (Mercury, Venus, Jupiter, and Saturn) with the C-14. Tom and Steve took some time to further collimate the telescope, and all agreed that the view of Jupiter was much improved after this was completed.

The date of our next monthly member's observing is to be determined. We have been asked by BBNC to not schedule events for the observatory until the installation of the concrete walkway is completed. Once this happens--hopefully in a week or two--we'll schedule the next session.

## President's Message

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For this June, as the weather warms and more people are out and about, it's a nice time of year for some sidewalk astronomy. The planets are fun to show folks as are the more notable deep space objects. Saturn is sitting nicely in the sky just past opposition. The tilt of the rings makes this quite a spectacularly crowd pleasing target. Jupiter is sitting majestically high in the sky. Through a telescope, people love spying its cloud bands and the four Galilean Moons dancing in orbit. Venus is up too shining so bright you need at least a neutral density filter to take in its beauty. Of course the Moon in its various crescent phases highlight the shadows on the surface from crater walls and terrain. Take time to explain the path of the planets along the ecliptic. It helps to crystallize our place in the Solar System. Don't forget to jump out into deep space and point out a few Messier objects. M13 is one of my favorites. This globular cluster is wondrous in a telescope. As we move more into summer and Cygnus begins to appear overhead, the blue and yellow double star Albireo will put a smile on anyone's face. One other thing I like to do is point out the various springtime constellations and asterisms and talk a little bit about each one. I discovered long ago that people like to be able to identify the star patterns and pick out their favorite.

Thanks for reading. See you at our next meeting.

Clear Skies,

Tony Falletta

## Observatory Operation and Training News

If you'd like to take the basics class, email Steve at [steve.conard@comcast.net](mailto:steve.conard@comcast.net) or talk to him after a future meeting. When there are several requests, a class will be scheduled. If you are one of the people who have taken the class, but need to demonstrate their observatory skills in order to become a qualified operator, contact Steve to arrange a mutually convenient time to do this.

New hardware received recently includes a roll-around 2 step ladder with railings and large platform. This will be moved to the observatory prior to its next use. Also, a set of four 2" color filters and a deep moon filter were donated by a member.

The membership stepped up to raise \$700 to pay for completion of the walkway within about a day of hearing about this need from Dawn Harry of BBNC. Thanks to all who contributed!

Observatory tips for June:

- Planets such as Jupiter and Venus may be very bright to the eye, especially with low power eyepieces. In these cases, use a color filter or the moon filter.
- For best observing efficiency, try to avoid meridian flips by planning targets to be viewed groups by if they are in the east or west.
- Raising or lowering the pier will have a minor impact on the go-to ability of the mount, but usually will still have the target near the middle of the finder scope. If you are going to leave the pier at a specific height, it may be worth doing a sync of the mount on that side of the meridian with the pier set as required.



## The "G" in GOES Is What Makes It Go

By Ethan Siegel

Going up into space is the best way to view the universe, eliminating all the distortionary effects of weather, clouds, temperature variations and the atmosphere's airflow all in one swoop. It's also the best way, so long as you're up at high enough altitudes, to view an entire 50 percent of Earth all at once. And if you place your observatory at just the right location, you can observe the *same* hemisphere of Earth continuously, tracking the changes and behavior of our atmosphere for many years.

The trick, believe it or not, was worked out by Kepler some 400 years ago! The same scientist who discovered that planets orbit the sun in ellipses also figured out the relationship between how distant an object needs to be from a much more massive one in order to have a certain orbital period. All you need to know is the period and distance of one satellite for any given body, and you can figure out the necessary distance to have any desired period. Luckily for us, planet Earth has a natural satellite—the moon—and just from that information, we can figure out how distant an artificial satellite would need to be to have an orbital period that exactly matches the length of a day and the rotational speed of Earth. For our world, that means an orbital distance of 42,164 km (26,199 miles) from Earth's center, or 35,786 km (22,236 miles) above mean sea level.

We call that orbit *geosynchronous* or *geostationary*, meaning that a satellite at that distance always remains above the exact same location on our world. Other effects—like solar wind, radiation pressure and the moon—require onboard thrusters to maintain the satellite's precisely desired position above any given point on Earth's surface. While geostationary satellites have been in use since 1963, it was only in 1974 that the Synchronous Meteorological Satellite (SMS) program began to monitor Earth's weather with them, growing into the Geostationary Operational Environmental Satellite (GOES) program the next year. For 40 years now, GOES satellites have monitored the Earth's weather continuously, with a total of 16 satellites having been launched as part of the program. To the delight of NASA (and Ghostbusters) fans everywhere, GOES-R series will launch in 2016, with thrice the spectral information, four times the spatial resolution and five times the coverage speed of its predecessors, with many other improved capabilities. Yet it's the simplicity of gravity and the geostationary "G" in *GOES* that gives us the power to observe our hemisphere all at once, continuously, and for as long as we like!

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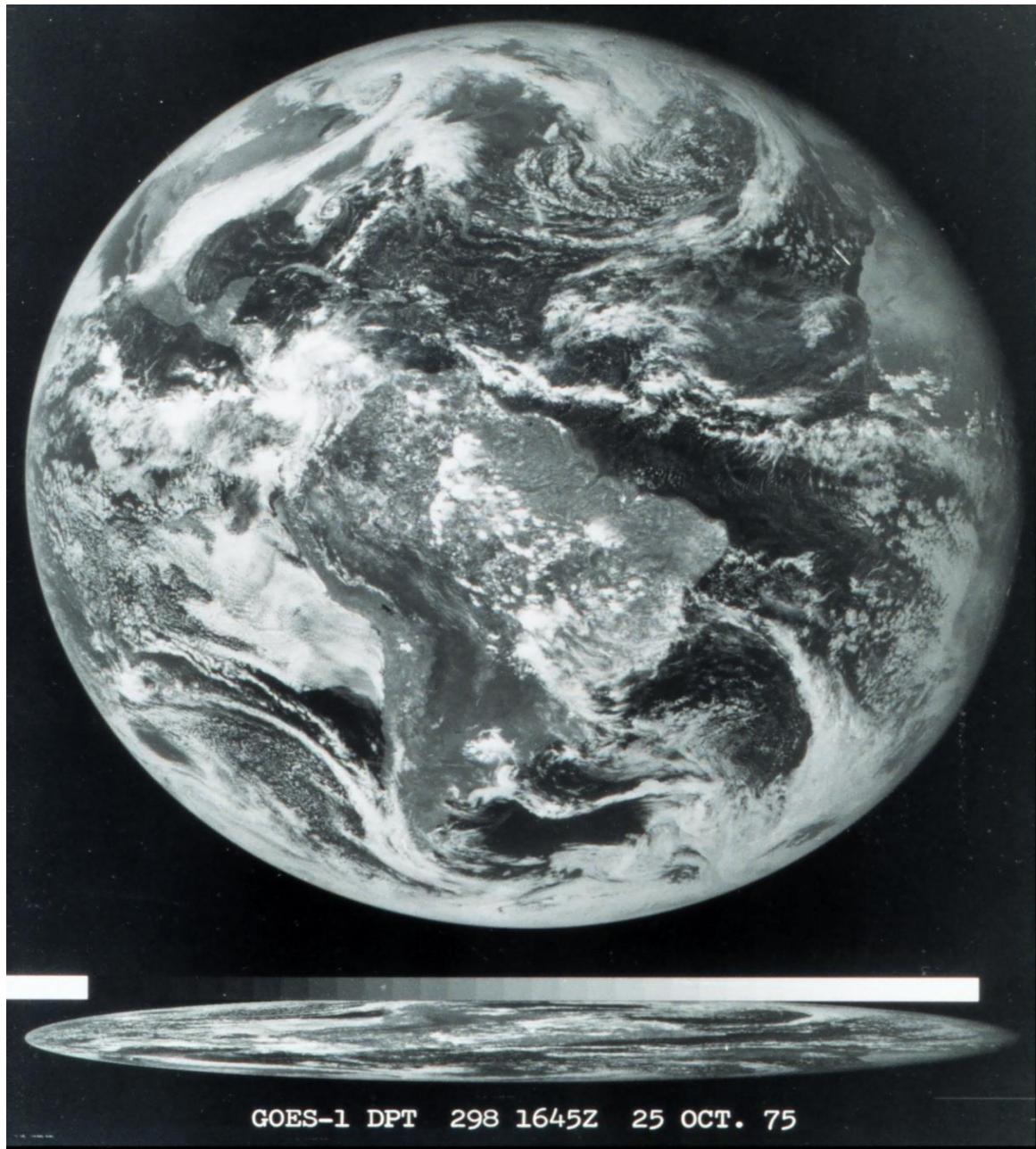


Image credit: National Oceanic and Atmospheric Administration, of the first image ever obtained from a GOES satellite. This image was taken from over 22,000 miles (35,000 km) above the Earth's surface on October 25, 1975.