

The Mason-Dixon Astronomer



St*r Points

Bear Branch is Carroll County's Center for Astronomy

August 2015 – Curt Roelle

The Bear Branch Nature Center (BBNC) is becoming the place for astronomical activity in Carroll County. Following a major upgrade to its planetarium, the nature center now has a brand new astronomical observatory whose grand opening occurs on August 22.

Ever since opening in 1993, Bear Branch has had visions of the heavens and its stars in mind. The building was constructed with a 20' wide x 20' long x 20' tall room at its west end that was intended to house a planetarium. But due to a funding shortfall the cube-shaped room sat vacant for a while. Then the Westminster Astronomical Society, Inc. (WASI) came to the rescue and finished it off by constructing a planetarium projection dome from scratch.

The experience of its members constructing domes (some members had back-yard observatories) came in handy. The difference was for an observatory the shiny side of the dome is on the outside, whereas for a planetarium the shiny side is on the inside where it acts as a screen for the planetarium projector.

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August Meeting:

- Wed., August 12th – 7:30 pm
Bear Branch Nature Center
- **Planetarium Tour**

Join Jim Reynolds (Planetarium Director) for a guided tour of the refurbished WASI Planetarium.

THE BIG DAY – SATURDAY 8/22

- Picnic – Observatory Dedication – Planetarium Show and more.
- Details on page 2!

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President's Message

August 2015 – Tony Falletta

Summer Greetings My Fellow Astronomers!

This month's newsletter finds us enjoying the summer months with exciting events occurring. On July 14th, the New Horizons spacecraft performed its flyby of Pluto, making its closest approach of about 7700 miles. It passed by Pluto's moon Charon by about 18,000 miles. Launched on January 19th, 2006, the spacecraft traveled some 3 billion miles in 9 ½ years to make its historic rendezvous. For the first time in human history, mankind has finally seen Pluto. So far, every picture received has been a jaw dropping surprise. The spirit of exploration is indeed alive and well with New Horizons. Once all the data has been sent back to the New Horizons team for analysis, its next task will be a flyby of another Kuiper Belt Object in 2018 or 2019. Go to <http://pluto.jhuapl.edu> for the latest information and news. When I go out at night and look out into space where Pluto currently is, it just makes me smile.

In observatory news, the Blaine F. Roelke Memorial Observatory is complete! The county received the Use & Occupancy Permit just a few weeks ago. We have set the date for our dedication and ribbon cutting ceremony for Saturday, August 22nd. The opening of the observatory marks the culmination of many people's time and efforts over the years to make a club observatory a reality so keep your calendars clear and bring your family, friends, cameras and smiles for this historic day in WASI history.

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August Meeting – Topic

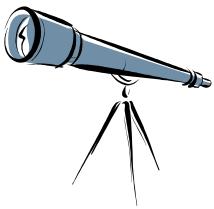


WASI Planetarium Tour

As Bear Branch Nature Center quickly becomes the center of astronomy for Carroll County, there have been many upgrades to the planetarium. New seating, a new projector, and several other upgrades

Our planetarium director, Jim Reynolds, will give members a tour of the facility and point out all of the upgrades and changes. He will provide demonstrations and insights into the changes and even provide a little history of the WASI planetarium.

Upcoming Events From Our Calendars



- ❖ **Soldiers Delight Public Stargazing** August 8th, 8 p.m., at Soldiers Delight Natural Environment Area in Owings Mills
- ❖ **Monthly Meeting** August 12th, 7:30 p.m., at Bear Branch Nature Center (BBNC)

THE BIG DAY!!!!

Saturday – August 22nd....

WASI will have a wonderful day filled with astronomy, ceremony, and community. Join us, as the club combines our summer picnic, the ribbon cutting/dedication of the observatory, and a planetarium show into one, "astronomical", event

- The fun starts at 5:00pm with the annual **WASI Summer Picnic**. Club members, family and friends will gather at the Nature Center to enjoy food, drinks, conversation, and friendship.
 - Note: Bring a side dish or dessert to share – the club will provide the rest. (BBQ selections this year! YUM!!!)
- Next up is the ribbon cutting and dedication of the **Blaine F. Roelke Memorial Observatory at BBNC**. This wonderful ceremony will begin at 6:30pm and will conclude with demonstrations and tours.
- Finally, the night will be capped off, at 7:30pm, with a **planetarium show**. Seating will be first come first served and will fill up quickly. If the weather permits, following the show, there will be plenty of observing opportunities outside.

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.

Junior Membership (under 18) is just \$5 per year

<http://www.westminsterastro.org>

St*r Points for August...

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The original projector was a Japanese Goto brand model. It featured a “star ball” with 750 fixed stars down to magnitude 5. There was also a cage with seven separate articulated projectors for projecting on the dome and demonstrating the motions of the sun, moon with phases, and the five naked eye planets – Mercury, Venus, Mars, Jupiter, and Saturn. A small device on top of the ball projected a 360° view of the Milky Way onto the dome. The planetarium seating consisted of wooden benches arranged in semicircular rows.

In 2013 the planetarium was upgraded. A computer-controlled digital projector was installed along with comfortable reclining seats. The planetarium is now a multimedia experience.

The other huge development is the completion of the Blaine F. Roelke Memorial Observatory at BBNC. The observatory is located in the grassy area inside the nature center’s parking ring. The observatory is named after Blaine Roelke, a charter member of WASI. The observatory has been donated by the Roelke family in a project spearheaded by Blaine’s son Frank. The family totally refurbished the observatory building and moved it, along with its three meter (10 foot) dome to its current location all at their own expense. The building has been gifted by the Roelkes to the Carroll County Parks and Recreation Department.

The Roelkes also donated Blaine’s telescope and equipment to WASI who in turn have installed it in the observatory on permanent loan to the county. The club has also raised money, some of which came from the Roelke family, in order to upgrade the telescope and add other equipment. The telescope mounting was replaced with a modern computer-controlled one. Also, an electrical motorized pier was introduced for raising and lowering the telescope and mount. WASI members have also provided donations to upgrade some of the telescope’s accessories. For example an improved finder telescope and motorized focuser.

The telescope’s design is what is known as a catadioptric system. Basically, it means that it has both a mirror as well as an optical lens element. The specific name for this type of telescope is a Schmidt-Cassegrain. The telescope’s mirror has a 14 inch aperture. That is, the mirror’s diameter is 14 inches.

The WASI astronomy club also covered the cost of running an underground cable from the nature center to the observatory for providing electricity to operate the telescope mount, pier, lights, computers, cameras, monitors, and other equipment that’s needed for performing astronomical observations. WASI also paid for the concrete used to pour two pads nearby on which portable telescopes can be erected, as well as the wheelchair-accessible pathway from the parking lot to the observatory.

The Parks Department provided the land for the building and much of the labor for site preparation, painting the dome and building exterior, and many other things needed to bring the project to completion.

Frank, and Blaine’s wife Nancy wanted Blaine’s beloved observatory to be made publicly available to all the people of Carroll County. The observatory was originally built on Blaine’s Carroll County farm near Keymar. Blaine and Nancy then took it with them when they built a new farm in southern Maryland’s Charles County. When they retired to a larger farm in Pennsylvania, they moved the observatory with them to its third site. Now the observatory has finally returned home to Carroll County.

The grand opening for the observatory is planned for Saturday, August 22. The time is to be announced. However, nearer to the event date you can call BBNC at 410-386-3580 for updated information.

The next show in the Bear Branch planetarium will also be on August 22 at 7:30. Admission is \$5 and reservations can be made by calling 410-386-2103 (Monday through Friday 8 a.m. to 4:30 p.m.) in advance to reserve your seat.

President's Message

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At the dedication Frank Roelke, who made the observatory a reality for us, will say a few words as will Carroll County Parks and Recreation Director Jeff Degitz who was also quite integral to the observatory project. With this event BBNC and WASI will be fully symbiotic with the Observatory, Planetarium and our monthly meetings. Speaking of monthly meetings, our August meeting will have 2nd Vice President and Planetarium Director Jim Reynolds will be giving us a tour of the recently upgraded digital Planetarium. I can tell you first hand that the new seats are extremely comfortable!

The month of August is the month was WASI typically holds its annual picnic. My officers and I have decided at our last meeting that the 22nd would be a perfect date to gather and enjoy some food and comradery before we cut the ribbon. A start time has not yet been set. As soon as the logistics are worked out, we will send out an email and also a notice in the Yahoo Wasi group. Please look for the email soon or go to the group page for details. We are going to want a headcount for the picnic so we know how much food to purchase. The big picture here is that we will gather in the late afternoon for the picnic followed by the opening ceremony and then get in some good stargazing so don't forget to bring your telescopes too.

This summer, I've been having fun with my Dobsonian telescope checking out some of my favorite targets. Globular Clusters M13 in Hercules and M22 in Sagittarius are spectacular in the eyepiece. After M22, I wander from the Teapot of Sagittarius over to Scorpius to see Globular Cluster M4 near red supergiant Antares. Over in Lyra, I love seeing the Double Double along with the Ring Nebula (M57), a beautiful Planetary Nebula. Next, I hop over to Vulpecula to see the Coathanger asterism (also known as Brocchi's Cluster). I then slide over to check out Cygnus the Swan flying high with the colorful blue and gold double star Albireo as its head. Finally I would be quite neglectful if I didn't mention Saturn. Sitting majestically high in the sky near the top of Scorpius, the ringed planet always leaves me in awe.

Thanks for reading. See you at our next meeting, picnic, and grand opening!

Clear Skies,
Tony Falletta

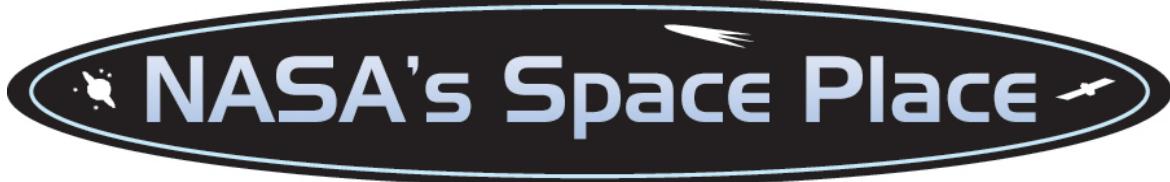
Member's Observing Night

Our last attempt at group observing was mostly cloudy, but three of us tried observing anyway. We did get a good look at the young moon and Saturn prior to it fully clouding over. There are two scheduled (weather permitting) observing opportunities in August. We will open the observatory after the August 12 meeting for an hour or so. Anyone who has taken the class and wants to practice is welcome to do it that night. Then we'll observe again after the observatory's grand opening on August 22. Note that we'll also try to have at least a short period of solar observing as part of the grand opening. Look for other spur of the moment observing opportunities in the near future. As these are highly weather dependent, typically there will only be 1-2 days notice for these events, and they will be announced on the Yahoo group.

Observatory Operation and Training News

There are currently no training classes scheduled. If you are looking to take the class, or you've done the class and want to do your skills demonstration, please contact me and I'll try to set up a mutually convenient time to do these. Please email me at steve.conard@comcast.net. Also check the Yahoo group for additional details.

As mentioned last month, those interested in being trained to time lunar and asteroid occultations will have an opportunity to do this the evening of August 6th (weather does not look good). The asteroid Jovita will pass in front of a 11.5 magnitude star in Aquila, effectively blinking the star out for as long as 6 seconds. This occurs at 21:16, with the predicted path centered on Bear Branch Nature Center. Steve will use the observatory to observe this event, and give a mini-class on how to do it starting at about 20:00. As always, Steve has 2 sets of loaner timing equipment should you want to time one yourself. Contact Steve at the above email address if you are interested in learning more about this.



On The Brightness Of Venus

By Ethan Siegel

Throughout the past few months, Venus and Jupiter have been consistently the brightest two objects visible in the night sky (besides the moon) appearing in the west shortly after sunset. Jupiter is the largest and most massive planet in the solar system, yet Venus is the planet that comes closest to our world. On June 30th, Venus and Jupiter made their closest approach to one another as seen from Earth—a conjunction—coming within just 0.4° of one another, making this the closest conjunction of these two worlds in over 2,000 years.

And yet throughout all this time, and especially notable near its closest approach, Venus far outshines Jupiter by 2.7 astronomical magnitudes, or a factor of 12 in apparent brightness. You might initially think that Venus's proximity to Earth would explain this, as a cursory check would seem to show. On June 30th Venus was 0.5 astronomical units (AU) away from Earth, while Jupiter was six AU away. This appears to be exactly the factor of 12 that you need.

Only this doesn't explain things at all! Brightness falls off as the inverse square of the distance, meaning that if all things were equal, Venus ought to seem not 12 but 144 times brighter than Jupiter. There are three factors in play that set things back on the right path: size, albedo, and illumination. Jupiter is 11.6 times the diameter of Venus, meaning that despite the great difference in distance, the two worlds spanned almost exactly the same angular diameter in the sky on the date of the conjunction. Moreover, while Venus is covered in thick, sulfuric acid clouds, Jupiter is a reflective, cloudy world, too. All told, Venus possesses only a somewhat greater visual geometric albedo (or amount of reflected visible light) than Jupiter: 67 percent and 52 percent, respectively. Finally, while Venus and Jupiter both reflect sunlight toward Earth, Jupiter is always in the full (or almost full) phase, while Venus (on June 30th) appeared as a thick crescent.

All told, it's a combination of these four factors—distance, size, albedo, and the phase-determined illuminated area—that determine how bright a planet appears to us, and all four need to be taken into account to explain our observations.

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Don't fret if you missed the Venus-Jupiter conjunction; three more big, bright, close ones are coming up later this year in the eastern pre-dawn sky: Mars-Jupiter on October 17, Venus-Jupiter on October 26, and Venus-Mars on November 3.

Keep watching the skies, and enjoy the spectacular dance of the planets!

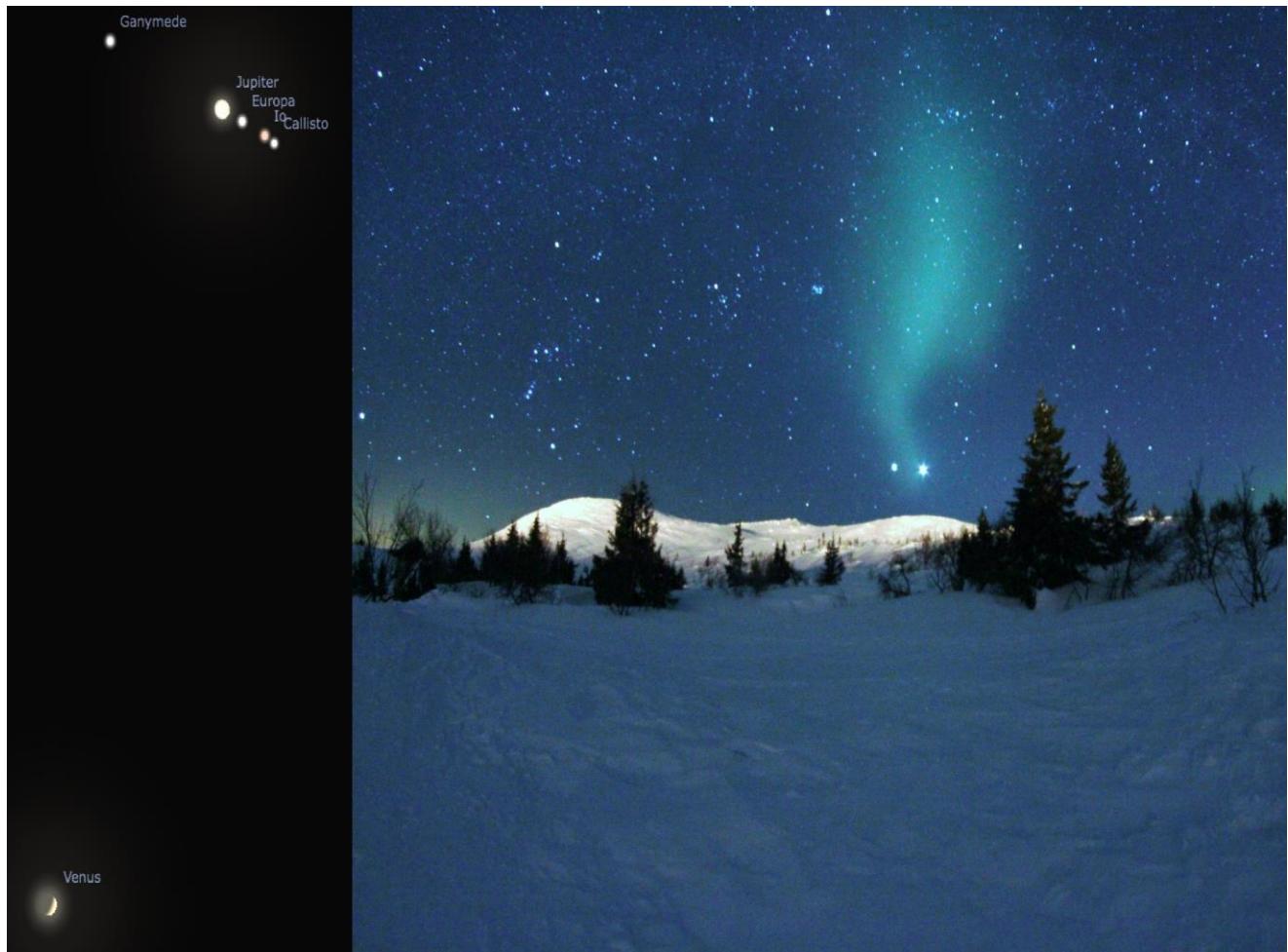


Image credit: E. Siegel, using the free software Stellarium (L); Wikimedia Commons user TimothyBoocock, under a c.c.-share alike 3.0 license (R). The June 30th conjunction (L) saw Venus and Jupiter pass within 0.4° of one another, yet Venus always appears much brighter (R), as it did in this image from an earlier conjunction.