

The Mason-Dixon Astronomer



Sept. Meeting:

- Wed., Sept. 11th – 7:30pm
Bear Branch Nature Center
- **Lunar Archeology**
The Search for Ancient Space Vehicles by Jeffery Plescia, Ph.D.

St*r Points

From the Beach to the Moon

September 2013 – Curt Roelle

From the dawn of the space age in the 1950s, when rockets first carried artificial satellites into earth orbit, and throughout the 1960s and early 1970s during the international race to the moon, and even up until the present time, nearly all space missions to the moon – both manned and unmanned – have been launched from the Cape Canaveral launch facilities in Florida. (The one exception is the 1994 Clementine mission launched from California's Vandenberg Air Force Base.)

However, history is being made this month as NASA launches its first moon mission from the Mid-Atlantic Regional Spaceport (MARS) located on Virginia's seashore.

MARS is situated on NASA's historic Wallops Island Flight Facility south of Ocean City, Maryland near Chincoteague. The facility was established in 1945 and became a test site for suborbital rocket launches. During NASA's manned Mercury program, Wallops Island was the site for unmanned suborbital test flights of the Mercury capsule using the "Little Joe" rocket.

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Little Joe 1 launch vehicle with Mercury capsule, August 1959

President's Message

September 2013 - Vanessa Thomas

Dear WASIans,

First, let me apologize for the incorrect information about the subject of the August meeting in my last column. Because of a vacation in late July (yes, I was riding roller coasters), I wrote my column early, when we were planning to have a tech & gadget night at the August meeting. But while I was on vacation, the renovations of the planetarium at Bear Branch were completed, so we decided to change the plans and show off the new planetarium during the meeting. Apologies if you came to the meeting expecting to learn about the latest astronomy tools and gadgets. We are now planning to do that at the October meeting. If you weren't there and want to see the new planetarium, I'm sure Jim Reynolds (our planetarium director) would be glad to show it to you at the next meeting or next public planetarium show. In fact, he's eager to train others who are interested in learning how to operate it. So if you're interested in learning how to control the heavens (under the planetarium dome, at least), talk to Jim to make arrangements.

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September Meeting – Guest Speaker

Jeffrey Plescia, Ph.D.

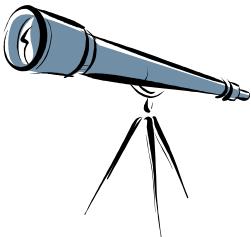
"Lunar Archeology - The Search for Ancient Space Vehicles"

For over 50 years, the United States and Soviet Union, have sent robotic and human spacecraft to the Moon to collect data, explore, and return samples. Some of those vehicles made soft landings on the surface, others impacted forming craters. Using data from the Lunar Reconnaissance Orbiter, most of those vehicles, and craters, have been located. Aside from general curiosity, locating the vehicles is important to understand the geologic context of the observations and samples.

Bio:

Jeffrey Plescia has a Ph.D. in geophysics from the University of Southern California. He has worked at the California Institute of Technology Jet Propulsion Laboratory, the US Geological Survey, and is currently working at the Johns Hopkins University Applied Physics Laboratory.

Upcoming Events From Our Calendars



- ❖ **Wallops Island Launch** September 6th, 11:27 p.m., - for more information read the Star Points article in this issue!
- ❖ **Monthly Meeting** September 11th, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Planetarium Show** September 14th, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Soldiers Delight Public Stargazing** September 14th, 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 September...

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Wallopss has continued over the years to serve as a launch site for unmanned sounding rockets carrying scientific payloads that gather scientific data or perform gas releases high above the surface of the earth forming clouds to be observed using ground-based instruments.

Although orbital launches were rare until recent years, Wallopss launched its first earth satellite, Explorer 9, in 1961. With the development of Orbital Science Corporation's (OSC's) Minotaur rocket, Wallopss has been launching artificial earth satellites more routinely since 2006.

Also later this month, OSC is scheduled to initiate resupply service missions to the International Space Station (ISS). OSC's newly developed Cygnus space vehicle will ascend into orbit aboard OSC's new Antares rocket and rendezvous with the ISS in earth orbit.

This month's lunar mission is called the Lunar Atmosphere and Dust Environment Explorer (LADEE). LADEE will be launched on the first flight of the newly developed Minotaur V rocket. It is expected to enter low lunar orbit 30 days after launch. Then LADEE spends the next 100 days trying to detect dust or whatever else it may find in the very tenuous lunar atmosphere.

Launch is scheduled for 11:27 p.m. EDT on Friday September 6. Backup launch windows occur nightly through September 10 with small variations in the scheduled launch time.

It will be a nighttime launch and should therefore be easily visible from suitable sites near Westminster, weather permitting. From locations with a clear southeastern horizon, without obstructing trees buildings and hills, the ascending rocket's plume will first be visible rising about one minute after launch and could reach an altitude of up to 10 degrees. As a reminder, 10 degrees is the width of your fist at arm's length.

Online sites such as NASA.gov and SpaceFlightNow.com will carry live webcasts of launch. Be aware of possible transmission delays in the broadcast feed. I recommend having an alternative source of time signals such as a shortwave radio tuned to WWV, if possible. Also, the Wallopss information line at 757-824-2050 is a good source of up-to-the-minute information.

In other news, Comet ISON (C/2012 S1) – mentioned here in January – crawled out of the morning twilight in mid-August. However, its relative faintness at magnitude 14 surprised observers. According to comet expert John Bortle, as quoted on Sky & Telescope magazine's web site, "That the comet continues to appear as faint as it does implies that its intrinsic brightness (absolute magnitude) is low and that the nucleus is probably small and relatively inactive." This may not bode well that this "sungrazer" will live up to the earlier "comet of the century" hype. Of course the century is still young, so hang on.

President's Message

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Also, chances are you're reading this on the Westminster Astronomical Society's website (www.westminsterastro.org), so you probably know that you can find up-to-date information about meeting topics and other WASI events there. We also have a couple other resources for WASI events and other astronomical stuff. One is our Yahoo mailing list. If you're a WASI member but aren't on the list, please ask me or Curt to add you. Alternatively, you can email WASI_officers@yahoogroups.com and ask to be added to the list. There isn't a ton of traffic on the list, but a good bit of information (and discussion) is shared that way, so I encourage you to join.

WASI also has a Facebook page, which Jim Reynolds administers. (Thanks, Jim!) This page has been a popular place to share general space and astronomy news and information. We also post there when the latest newsletter is available, and when the next club meeting or planetarium show is. So if you're a Facebook user, I encourage you to check that out, too.

Another good reason to be on the Yahoo mailing list is that we've started a poll about the WASI observatory to gauge members' sentiments and feelings about it. However, you'll need to be a member of the WASI Yahoo group to vote in the poll. We expect this initial (one-question) poll to be the first of a few to find out what direction the club thinks we should be going with the observatory. If you'd like to share your opinion and participate in the polls, make sure you're on the mailing list. (If you don't know whether you are subscribed or not, ask Curt or me, and we'll check to see whether your email address is on the list.)

The Hubble image that I'd like to share with you this month features Comet ISON, again. I know I shared another image of the comet in the spring, but this new image has so much more going on. Here, Comet ISON is zooming through a field filled with lots of wonderful, little background galaxies. None of them are really little, of course. They just look little because they're so far away. It's just another fantastic demonstration of how big and amazing the universe is. If you can't spot the galaxies here, please seek out the full-resolution version of the image at hubblesite.org (click on "newscenter" or "gallery" at the top of the page to search for the comet image). It's worth it!

Until next time, clear skies!

Vanessa



Gadget Night – Coming Next Month (October!)

Do you have a gadget or gizmo that you love to use during your observing sessions? Is there a tool that you use to plan or record those sessions? Is there something you can't live without while you are involved in this hobby we all love? Then this is your chance to share!

Are you wondering how to participate? Here you go...

You should plan to spend 5-10 minutes (i.e. short) succinctly explaining your "gadget" to the club. Gadgets can be homemade or commercial items, hardware or software. For software demos, you should bring a computer, if possible. If the software is strictly web-based we'll try to have a PC available at the meeting. However, because of the intermittent wireless service in the nature center, we advise that prior to the meeting you paste screen shots into a PowerPoint presentation to show.

If you have a gadget you would like to share, please contact Curt Roelle to be included.

Create your own Loopy Legends at...

NASA's Space Place!



This new activity could lead you to a black hole deep in space or to a slimy beach right here on Earth. The choice is yours! Fun science facts will follow each story. Learn about our solar system, the Sun, deep space, and even our own planet as you create the perfect adventure tale. Visit <http://spaceplace.nasa.gov/loopy-legends/>.



Blaine Roelke (1946–2013)

Remembering a Long-time Member

WASI charter member Blaine Roelke passed away at his Pennsylvania farm in June after battling cancer. He was 67.

Blaine joined WASI in November, 1984, at the organization's first business meeting. He also served as the club's first treasurer.

On his farm at Keymar, near Taneytown, was his observatory with a 3-meter Ash brand dome housing his 8" Newtonian reflector. Also a member of the International Amateur-Professional Photoelectric Photometry (IAPPP) organization, Blaine's interest in photometry led him to collaborate with Mike Potter, another WASI member who was active with the American Association of Variable Star Observers (AAVSO).

During their collaboration, Mike's home-made equatorially fork-mounted 17" Serrurier Truss telescope replaced the 8" in the observatory. They used it to study and measure variable stars using photometers and strip recorders.

Blaine was also a member of the Baltimore Astronomical Society where he met his wife, Nancy. Nancy then migrated to Keymar from her native downtown Baltimore city to become a farm wife.

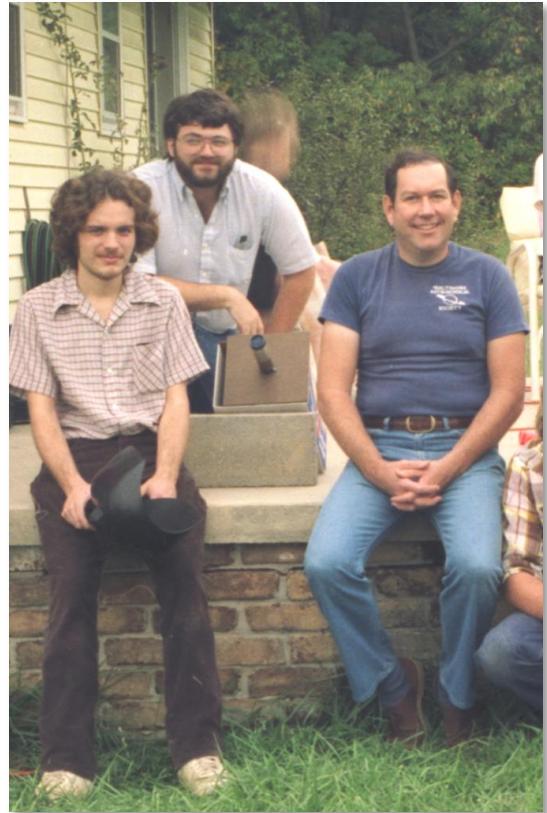
A job change in the 1990s led Blaine and Nancy to sell the farm and create a new farm in Charles County where the couple built a new house and out buildings, including the relocated Ash observatory. In the meantime, Mike had transferred his 17" telescope to a new observatory he had built at another WASI member's home in Reisterstown.

Eventually, Nancy and Blaine moved to a farm near Rockwood, PA. Once again the observatory was relocated to yet another home. By now the observatory's main instrument was a Celestron 14" Schmidt-Cassegrain.

Over the years Blaine and Nancy kept in touch with their friends in WASI, whom they would meet up with from time to time at regional star parties such as the Mason-Dixon Star Party.

Frank Roelke, Blaine's son from a previous marriage, is a current WASI member living in Westminster.

In an email, Nancy wrote, "I would like you and everyone to think of the good times we shared over the years doing astronomy...He loved the stars and now he's there enjoying the night skies all the time now."



Members of the Westminster Astronomical Society pause during a partial solar eclipse on Friday, October 3, 1986 at the Westminster home of Curt Roelle. Blaine Roelke is on the far right.



Blaine's Ash observatory at Keymar, MD.
(photo courtesy of Mike Potter)



Size Does Matter, But So Does Dark Energy

By Dr. Ethan Siegel

Here in our own galactic backyard, the Milky Way contains some 200-400 billion stars, and that's not even the biggest galaxy in our own local group. Andromeda (M31) is even bigger and more massive than we are, made up of around a *trillion* stars! When you throw in the Triangulum Galaxy (M33), the Large and Small Magellanic Clouds, and the dozens of dwarf galaxies and hundreds of globular clusters gravitationally bound to us and our nearest neighbors, our local group sure does seem impressive.

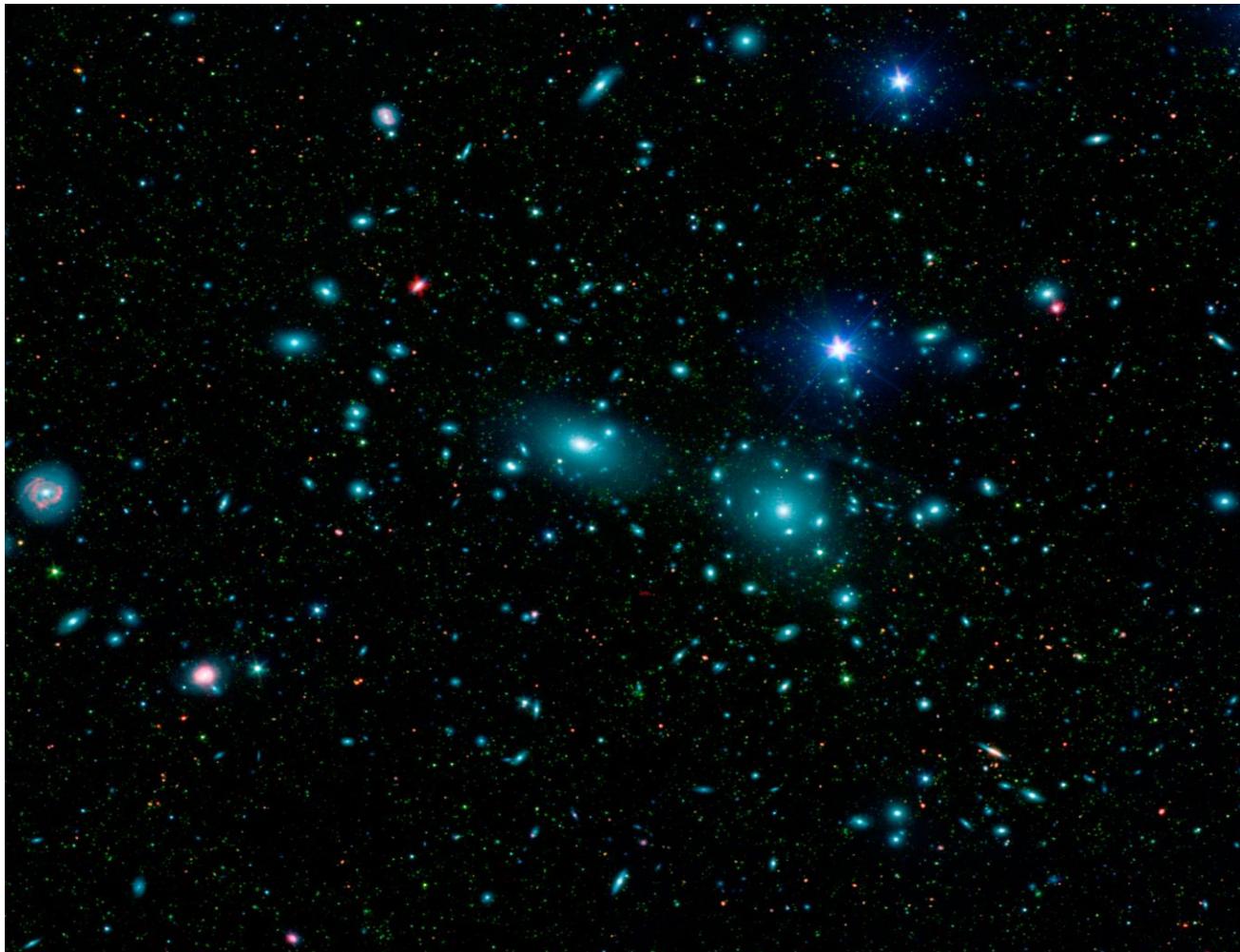
Yet that's just chicken feed compared to the largest structures in the universe. Giant clusters and superclusters of galaxies, containing thousands of times the mass of our entire local group, can be found omnidirectionally with telescope surveys. Perhaps the two most famous examples are the nearby Virgo Cluster and the somewhat more distant Coma Supercluster, the latter containing more than 3,000 galaxies. There are millions of giant clusters like this in our observable universe, and the gravitational forces at play are absolutely tremendous: there are literally *quadrillions* of times the mass of our Sun in these systems.

The largest superclusters line up along filaments, forming a great cosmic web of structure with huge intergalactic voids in between the galaxy-rich regions. These galaxy filaments span anywhere from hundreds of millions of light-years all the way up to more than a *billion* light years in length. The CfA2 Great Wall, the Sloan Great Wall, and most recently, the Huge-LQG (Large Quasar Group) are the largest known ones, with the Huge-LQG -- a group of at least 73 quasars -- apparently stretching nearly 4 billion light years in its longest direction: more than 5% of the observable universe! With more mass than a million Milky Way galaxies in there, this structure is a puzzle for cosmology.

You see, with the normal matter, dark matter, and dark energy in our universe, there's an upper limit to the size of gravitationally bound filaments that should form. The Huge-LQG, if real, is more than *double* the size of that largest predicted structure, and this could cast doubts on the core principle of cosmology: that on the largest scales, the universe is roughly uniform everywhere. But this might not pose a problem at all, thanks to an unlikely culprit: **dark energy**. Just as the local group is part of the Virgo Supercluster but recedes from it, and the Leo Cluster -- a large member of the Coma Supercluster -- is accelerating away from Coma, it's conceivable that the Huge-LQG isn't a single, bound structure at all, but will eventually be driven apart by dark energy. Either way, we're just a tiny drop in the vast cosmic ocean, on the outskirts of its rich, yet barely fathomable depths.

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Learn about the many ways in which NASA strives to uncover the mysteries of the universe: <http://science.nasa.gov/astrophysics/>. Kids can make their own clusters of galaxies by checking out The Space Place's fun galactic mobile activity: <http://spaceplace.nasa.gov/galactic-mobile/>



Digital mosaic of infrared light (courtesy of Spitzer) and visible light (SDSS) of the Coma Cluster, the largest member of the Coma Supercluster. Image credit: NASA / JPL-Caltech / Goddard Space Flight Center / Sloan Digital Sky Survey.