

The Mason-Dixon Astronomer



September Meeting:

- Wed., Sept. 10th – 7:30 pm
Bear Branch Nature Center

- **Dr. Carey Lisse**

“Comet Close Encounter with Mars!”

Dinner Before the Meeting

- Wed., Sept. 10th – 6pm.
- Harry's Main Street Grill
65 W Main Street
Westminster, MD 21157

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St*r Points

Comet to Pay Visit at Mars

September 2014 – Curt Roelle

A new public astronomical observatory is currently under construction at Carroll County's Bear Branch Nature Center (BBNC) near Westminster. Ever since the park first opened more than twenty years ago, there have been members of the community advocating for an observatory of one type or another at the site for the use of the citizens of Carroll County.

Blaine Roelke was a charter member of the Westminster Astronomical Observatory (WASI) since its formation 30 years ago. On his Carroll County farm at Keymar he built an observatory with a steel dome 10 feet in diameter. In later years when a work opportunity led him to sell the farm and build a new house, Blaine moved his observatory to the new farm in Charles County. Upon his retirement, Blaine and wife Nancy sold that farm and moved to another farm in Pennsylvania, searching for darker and more pristine skies. Once again, the observatory was relocated.

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President's Message

September 2014 – Tony Falletta

Greetings Fellow Astronomers!

September is now upon us. Soon the weather will change from hot and humid to cooler and dryer. Although the heat of summer is waning, the fall season often gives us warm days and cool clear nights. Our summers here in Maryland are mostly dominated by the Bermuda High, a semi-permanent, subtropical area of high pressure in the North Atlantic Ocean off the East Coast of North America. This high pressure system migrates east and west in the Atlantic. In the summer season, it migrates west towards the U.S. coast and its clockwise circulation pulls the very warm moist air up from the south and into our region giving our hot and hazy days of summer. As we move into autumn, this High starts to migrate eastward and away the coast and allows the cooler, dryer polar air from Canada to become the dominant weather mechanism. You easily can tell that fall is in the air with quite noticeable lack of humidity. This dryer air means a telescope is less prone to dew forming on the glass. Even though the nights are cooler, the dryer skies are a great opportunity for stargazing.

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September Meeting – Guest Speaker

Dr. Carey Lisse, Senior Research Scientist – JHU–APL

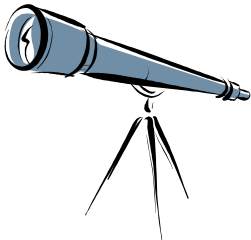
“Comet Siding Spring’s Close Encounter with Mars”

In October, Mars has an appointment for a rare encounter with a comet. On October 19, Mars and Comet Siding Spring (C/2013 A1) will pass each other with only 86,000 miles between them! Dr. Carey Lisse (The Johns Hopkins University Applied Physics Laboratory, JHU-APL) will discuss the event, what to expect, and what may be learned.



Upcoming Events From Our Calendars

- ❖ **Planetarium Show** September 6th, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Monthly Meeting** September 10th, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Summer Picnic** September 13th, 5:00 p.m., at Bear Branch Nature Center (BBNC)
- ❖ **Soldiers Delight Public Stargazing** September 13th, 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.

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 September...

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Last summer Blaine passed away after a long illness. Nancy, and Blaine's son Frank, decided to refurbish the observatory and donate it to the people of Carroll County. Construction costs have been shared by the Roelke family, Carroll County Parks, and WASI. The equipment for the observatory is being provided on permanent loan from WASI's collection of astronomical equipment which has accumulated over time.

Expect a dedication for the project at a future date. In the meantime, stop by the nature center and have a look at the Blaine Roelke Memorial Observatory, now at its fourth location. A good opportunity to see it will be the open house during BBNC's Monarch Madness festival on Sunday, September 14.

Last month we reminisced about the great comet crash bash when Comet Shoemaker-Levy 9 pummeled the planet Jupiter in 1994. Now, 20 years later, it's Mars' turn to have its own, albeit less spectacular, close encounter with a comet.

Around October 19-20 comet C/2013 A1 (Siding Spring) will pass only 82,000 miles from Mars. In celestial terms, that's "buzzing the tower" to borrow an aviation phrase. Consider that the closest known comet to earth was Comet Lexel in 1770 which passed 1.4 million miles from us, according to Sky & Telescope Magazine.

Among other close comets, I clearly remember when Comet IRAS-Araki-Alcock passed near our planet at a distance of just under three million miles in 1983. In a telescope the comet's motion was readily apparent, especially as it passed near two bright and well known star clusters, Messier 48 and Messier 44. The latter is the famous Praesepe or Beehive cluster in Cancer.

Only now it's Mars' turn. Only its comet will pass some 35 times closer than the 1983 comet was to earth. How will Mars and the comet affect each other? Will spacecraft currently at Mars be able to monitor the close shave? Will we be able to watch it from earth with our backyard telescopes? There are many questions that have professional and amateur scientists curious.

The reason for mentioning this in September, one month early, is because a man who knows the questions and is interested in discovering the answers will be visiting Westminster soon. Dr. Carey Lisse from The Johns Hopkins University's Applied Physics Laboratory (JHU-APL) will address the regular WASI monthly meeting at 7:30 p.m. on Wednesday, September 10 at BBNC. The meeting, which is open to the public, also offers another opportunity to get a sneak peak at the Roelke Observatory.

Next month we will busy ourselves by talking about two eclipses occurring in the month of October.

President's Message

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I hope you all had a chance to see the perigee moon (super moon) of August 10th. I had set up my 8" reflector complete with a lunar filter for people to see the Moon up close and personal on the night of my town's annual Camp Night. Seeing the Moon with your eyes is one thing but seeing it magnified is something else. You won't get to see the shadowing on the lunar terrain at full moon but the view is nonetheless outstanding. I had folks stopping to take a peak and they all said the same thing, "wow". I couldn't agree more. I was able to do lunar observing and not much else until about 10pm when clouds rolled in and Mother Nature decided I had enough fun. The next night I was out of town and was able to enjoy a little bit the Perseid Meteor shower. It is one of the hallmarks of summer that I almost never miss out on. I hope you got out to sit back and enjoy this year's show.

Here at WASI's home, Bear Branch Nature Center, The Blaine Roelke Observatory is being installed. The concrete pad was poured and the Observatory was delivered. The buildings walls are up and the dome and is installed. The next step is completing the exterior finish, installing the pier for the telescope, and having the electrical wiring strung in. At our last meeting we had a nice showing of members and visitors in attendance so we walked over to the Observatory for an initial look and group photo. As of this writing, it looks like the Observatory could be operational by October. It won't be long before our club and all its members will have access to a beautiful observatory complete with a 14" SCT. As we get closer to completing this project, we are more able to direct our energies to the Taneytown Project.

In Taneytown, we are in the process of setting up a meeting with town officials to work out the details for our Roll-Off Roof Observatory. The town has requested we inform them as to our desired location in Bollinger Park. I am told they will plan on putting in road access into the park for the observatory and also are planning restrooms to be nearby. A meeting with town officials will reveal the level of support we can expect. It is my hope that with the help of Taneytown and some corporate sponsorship, we can have ourselves a premier observatory and star party location for the region. Bollinger Park has a beautifully dark sky that is just a star party away from being well renowned to the amateur astronomical community.

For September, "Tony's Astronomy Target" is actually two targets. This first one is Cygnus the Swan, which is on Meridian on September 1st. Flying along the Milky Way you will find this beautiful constellation. The Swan's tail is marked by Deneb which comes from the Arabic word dhanab, meaning 'tail'. This blue-white supergiant star that is about 60 times the sun's diameter and 30 times the sun's mass. Deneb shines at 1.3 magnitude and is the 19th brightest star in the sky. Moving along the body of Cygnus you will come to Sadr, an Arabic name meaning "chest", which shines at 2nd magnitude. Right next to Sadr is NGC 6910, the Rocking Horse Cluster which is 7th magnitude open cluster. Moving a little towards the head you will see M29, an open cluster of stars. It has been known as the Cooling Tower Cluster by some. Took a look and see if you agree. It shines at around 7th magnitude. Next along the neck you'll spot NGC 6871, a 7th magnitude open cluster known as the Star Chain. Finally, stop at the always eye pleasing Albireo, the head of the swan. This double star is a true binary star gravitationally bound to each other. The color contrast of the two stars is quite evident when viewed. The brighter yellowish-gold star shines at 3rd magnitude while the dimmer blue star shines at 5th magnitude. Seeing bright colorful stars at night against a black sky is always a joy for me.

The 2nd target I've picked is Vulpecula, the Fox. This small constellation which is on Meridian on September 10th, lies right near Albireo. I decided to point out Vulpecula since there are only a couple of objects I wish to talk about. First is M2, a planetary nebula known as the Dumbbell Nebula. This nebula shines at 7th magnitude and through a telescope lends a dumbbell (hence the name) shape. It has a somewhat fuzzy appearance to it so you will know it not to be a star when you spot it. The other object you need to see here is Cr399, Brocchi's Cluster. It is more commonly known as the Coathanger Cluster. This object is an excellent binocular target. About 30 stars make up this cluster but the 10 brightest ones form the shape of a hanger and its hook. This cluster is not an open cluster but actually an asterism which will surely please your eyes. I like to show people the Coathanger and enjoy their reaction. They typically say, "Oh that's cool!" and then look up from the scope and try to spot it with their naked eye. It is at that moment when I say to myself, "No, THAT's cool!"

That's all for now so get out there and look up!

I hope to see you at our next meeting.

Clear Skies

Tony Falletta

Second Combination Analemma – Sundial Installed

By: Bob Clark

A combination Analemma – Sundial has been installed at

Charlottes Quest Nature Center Manchester Maryland

This is the second Carroll County Analemma. The first is installed at Hoffman’s Ice Cream in Westminster.

The Charlottes Quest Analemma and sundial was built and installed by Bob Clark, Bill Skinner and the Westminster Astronomical Society as a cultural contribution to the town of Manchester and Carroll County, Maryland. The Charlottes Quest Analemma uses a wooden ball at the top of the wooden post (gomen), to trace a shadow for the analemma figure. The Charlottes Quest Analemma is graced by an elegant, bronze, “Curved Dial” Sundial donated by Mr. Frank Roelke from his father’s estate. The sundial is mounted at the south side of the gomen.

2014 WASI Summer Picnic

When:

Saturday, September 13th, 5pm

Where:

Bear Branch Nature Center (BBNC). *** We will be having the picnic at the Observatory this year *** There are plenty of picnic benches. If weather becomes a problem the party might move to the pavilion near the pond or the deck on the nature center.

Who:

Club members, their friends, and family.

What:

A pot-luck picnic to get together and enjoy the company. If the weather is nice, there might even be some observing after the picnic. The club will provide a grill and grill products (hot dogs and burgers). You will need to bring your own drinks and, if you can, a side dish or dessert to share.

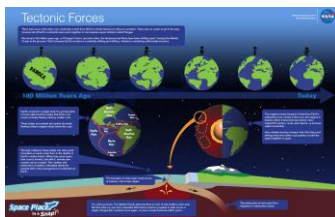


WASI CafePress Store...

Ever wonder where all that great, WASI logo, gear comes from? Well...wonder no more!

Visit our CafePress store http://www.cafepress.com/wasi_store and find dozens of items with our logo. Items such as hats, shirts, mugs, baby clothes, dog clothes, clocks, cell phone cases, license plate frames, and much, much more.

A portion of each sale comes back to the club. So help the club and get some really cool things for yourself or your loved ones!



So what happened to Pangea?

Tectonic Plates

There was once a time when you could take a stroll from North or South America to Africa no problem. There was no ocean to get in the way, because all of Earth's continents were stuck together in one massive supercontinent called Pangea. How is this possible? And how did the continents get to where they are today? Our latest "Space Place in a SNAP!" animation and poster combination tackles this fascinating question. Check it out today!

<http://spaceplace.nasa.gov/tectonics-snap>.



Droughts, Floods and the Earth's Gravity, by the GRACE of NASA

By Dr. Ethan Siegel

When you think about gravitation here on Earth, you very likely think about how constant it is, at 9.8 m/s^2 (32 ft/s^2). Only, that's not quite right. Depending on how thick the Earth's crust is, whether you're slightly closer to or farther from the Earth's center, or what the density of the material beneath you is, you'll experience slight variations in Earth's gravity as large as 0.2%, something you'd need to account for if you were a pendulum-clock-maker.

But surprisingly, the amount of *water content* stored on land in the Earth actually changes the gravity field of where you are by a significant, measurable amount. Over land, water is stored in lakes, rivers, aquifers, soil moisture, snow and glaciers. Even a change of just a few centimeters in the water table of an area can be clearly discerned by our best space-borne mission: NASA's twin Gravity Recovery and Climate Experiment (GRACE) satellites.

Since its 2002 launch, GRACE has seen the water-table-equivalent of the United States (and the rest of the world) change significantly over that time. Groundwater supplies are vital for agriculture and provide half of the world's drinking water. Yet GRACE has seen California's central valley and the southern high plains rapidly deplete their groundwater reserves, endangering a significant portion of the nation's food supply. Meanwhile, the upper Missouri River Basin—recently home to severe flooding—continues to see its water table rise.

NASA's GRACE satellites are the only pieces of equipment currently capable of making these global, precision measurements, providing our best knowledge for mitigating these terrestrial changes. Thanks to GRACE, we've been able to quantify the water loss of the Colorado River Basin (65 cubic kilometers), add months to the lead-time water managers have for flood prediction, and better predict the impacts of droughts worldwide. As NASA scientist Matthew Rodell says, "[W]ithout GRACE we would have no routine, global measurements of changes in groundwater availability. Other satellites can't do it, and ground-based monitoring is inadequate." Even though the GRACE satellites are nearing the end of their lives, the GRACE Follow-On satellites will be launched in 2017, providing us with this valuable data far into the future. Although the climate is surely changing, it's water availability, *not* sea level rise, that's the largest near-term danger, and the most important aspect we can work to understand!

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Learn more about NASA's GRACE mission here: http://www.nasa.gov/mission_pages/Grace/

Kids can learn all about launching objects into Earth's orbit by shooting a (digital) cannonball on NASA's Space Place website. Check it out at: <http://spaceplace.nasa.gov/how-orbits-work/>

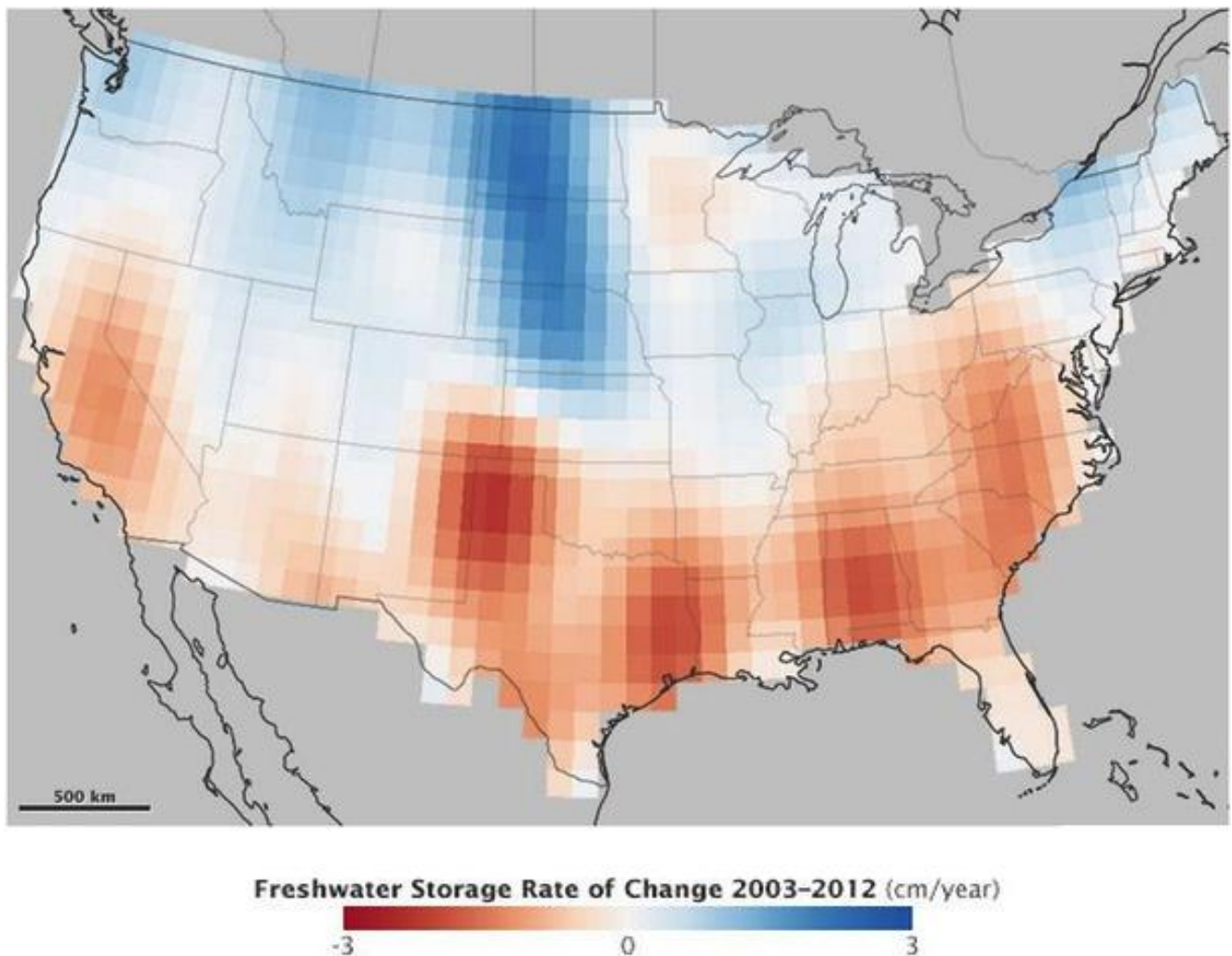


Image credit: NASA Earth Observatory image by Jesse Allen, using GRACE data provide courtesy of Jay Famigleitti, University of California Irvine and Matthew Rodell, NASA Goddard Space Flight Center. Caption by Holli Riebeek.