



BACK BAY observer

The Official Newsletter of the Back Bay Amateur Astronomers
P.O. Box 9877, Virginia Beach, VA 23450-9877

EPHEMERALS september 2012

09/21, 7:00 pm
Night Hike
Northwest River Park

09/25, 6:00 pm
Boardwalk Astronomy
Near 24th St Stage
VA Beach Oceanfront

10/04, 7:30 pm
BBAA Monthly Meeting
TCC Campus

10/05
Skywatch
Northwest River Park

10/13
Nightwatch
Chippokes State Park
Surry, VA

10/11-14
East Coast Star Party
Hampton Lodge
Coinjock, NC



Looking Up!

Editors Note: This month's Looking Up column was written by BBAA's newsletter editor, Paul Tartabini. President Courtney Flonta will return as the column's regular author.

Happy Autumn! By the time you read this it should be very close to the Fall equinox. The sun crossing the equator is perhaps a trivial fact for many of our friends and neighbors, but for us amateur astronomers, the Sun leaves a gift as he departs to the Southern Hemisphere — longer nights. Not to mention nights that are often pleasantly cool and devoid of the gloomy haze that plagues our Tidewater skies all summer. There's even a decrease in little blood-sucking invaders. Are they ever gone completely, though?

In any event, this fall there is excitement in the air (or should I say skies) for us BBAA'ers. Hopefully you enjoyed some of it during the September New Moon week when we were treated to some spectacularly transparent skies that were long overdue after such a hot, humid, cloudy summer.

There's also excitement in our club as well. In case you didn't hear, at the August meeting club president Courtney Flonta and the other officers announced that the format of the monthly meetings will be changing. Beginning in September, meetings will be focused more on astronomy and less on club business.

What does this mean? Well, it means more presentations on astronomy topics from fellow club members. It means occasional workshops on topics like how to use your telescope, how to collimate, how to safely observe the sun, etc. In other words, it means

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BBAA Meeting Minutes & Summary

September 6, 2012

- The Meeting at TCC was called to order by Treasurer Bernie Strohmeyer at 7:37 PM.

- Those in attendance were: Jeff Goldstein, Eric Ingram, Ben Loyola, Matt McLaughlin, Katelyn Neese, Stacy Neese, Joey Quinn III, George Reynolds, Bill Rust, Bernie Strohmeyer, Kevin Swann, Paul Tartabini and 'Bird' Taylor.

Outreach:

- VA Air & Space Museum's hosting of the live Mars 'Curiosity' landing was well attended. People filled the IMAX theatre & overflowed onto the floor. Outdoor observations were of the moon due to clouds.

We had a SUPER meeting on September 6!

We had a couple of interesting visitors tonight, and as we went around the room introducing ourselves, we talked a lot about physics and engineering, SEDS, the RRRT, tracking satellites and photographing them in their orbits, Visitor Eric Ingram a student at ODU, has started up a new chapter of SEDS, Students for the Exploration and Development of Space, at ODU with several other physics and engineering students. Bill West, a retired engineer, told about writing a program to calculate meridian transit of the Sun and stars. Bird is looking for software to track and photograph orbiting artificial satellites.

Ben Loyola presented a very intriguing slide show and vivid explanation on how amateur astronomers can contribute to actual science by tracking asteroids and other near-earth objects. He explained the setup, software, analysis, and reporting procedures. Asteroid sightings, along with their location (Right Ascension and Declination) and time of observation, are reported to the Minor Planet Center, who matches them with their humongous database and identifies the object. After several days, the data may show up on the MPC Web site. Ben uses a 26" remote telescope in the Black Hills of South Dakota to track and image asteroids up to 17+ magnitude. The remote telescope uses some of the same software as that used on the RRRT on Fan Mountain. A question and answer session followed the presentation. Club members present were very interested in the subject presented. Those who weren't there missed a very informative and interactive meeting.

- August 28th Boardwalk Astronomy was cancelled due to weather & rain date could not be confirmed.

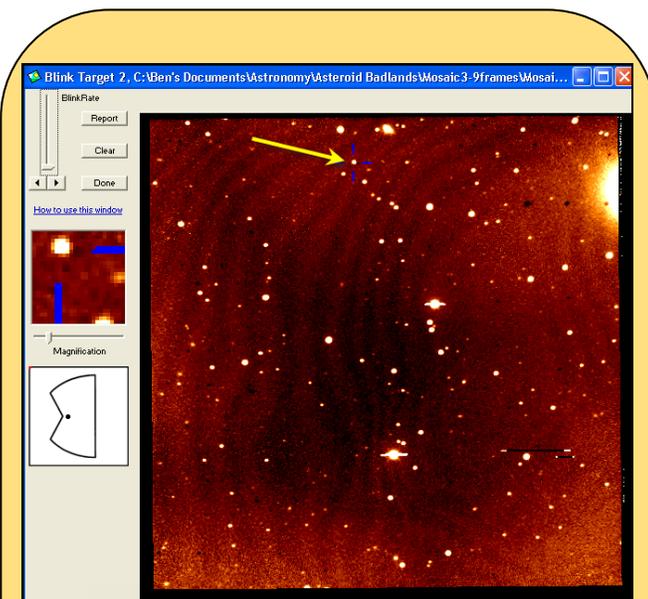
New Guests: Eric Ingram & Bill Rust.

Observing reports:

- Bird Taylor says the sun is very active and 4 days ago was a big solar flare that caused a radio blackout on September 5th. Also, last night, there was an M class X-ray burst (slower effect on Earth.)

- The evening presentation was by BBAA's Ben Loyola, titled "Minor Planets, Comets & Asteroid Hunting."

Meeting was adjourned at 8:55PM



A screen capture showing asteroid 1998 RU62 (see arrow) that BBAA member Ben Loyola imaged and processed. Ben submitted his measurements to the Minor Planet Center which used them to update the asteroid's orbital elements, a set of parameters that define its track through space (orbit).

Ben uses the program Visual PinPoint to "solve" the plate (image) for its precise astrometry (the detection and measurement of positions of stars in Right Ascension, Declination and Magnitude). By examining multiple plates, a moving Minor Planet or Asteroid's position and speed relative to the background stars can be calculated. Typically, four plates spaced 15 to 45 minutes apart are needed to calculate the astrometry of a moving object.

Read more in a related Sky & Telescope article at <http://tinyurl.com/FindAsteroids>

The Back Bay Amateur Astronomer's
Observer

The BBAA Observer is published monthly; the monochrome version is mailed to members who do not have internet access. Members who do have Internet access can acquire the full color version on the Internet at <http://www.backbayastro.org/observer/newsletter.shtml>

Please submit articles and items of interest no later than the 15th of the month for the next month's edition. Please submit all items to: bbaa.newsletter@gmail.com or BBAA Observer, P.O. Box 9877, Virginia Beach, VA 23450-9877

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BBAA Meetings

The BBAA meet the first Thursday of every month except for July. While school is in session, we meet at the VA Beach TCC Campus. The October meeting will be held at TCC in Virginia Beach, Building J, Rm JC-12 at 7:30 pm. Directions available at www.backbayastro.org.

BBAA Internet Links

BBAA Website
www.backbayastro.org

Yahoo! Groups
tech.groups.yahoo.com/group/backbayastro

BBAA Observer Newsletter
www.backbayastro.org/observer/newsletter.shtml

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more time spent on our hobby, the reason we joined the club in the first place.

Of course, the club still has business that must be dealt with, so every three months we will have a business related meeting for things like officer elections, outreach event planning, and club decision-making. But, as before, these business meetings will still include astronomy-related presentations and discussions.

If you're wondering how this new format will work, be sure to read our September meeting report on page 2 which discusses how the first meeting held under this new format went. As you'll see, members who attended had

a great time and learned something about finding and observing asteroids from Club Member, Ben Loyola.

Which brings me to my final point, for this new format to work we need BBAA members to volunteer to make presentations and conduct workshops. Everyone has something to offer. So if you have something to share, please drop an email to Courtney (see email address above) and sign up.

Until next time, Clear skies...

Paul Tartabini

Thoughts on the Future of Amateur Astronomy

Jordan Bramble raised an interesting question recently on the BackBayAstro Yahoo Group Site. So interesting that he received a number of well thought out responses. What follows is Jordan's question along with some of the responses. Special thanks to George Reynolds for compiling them all in one article.

Q: While at work today I spent some time daydreaming about amateur astronomy and the future of this hobby we all love. If you look at the demographics of most astronomy clubs one can't help but notice that the majority of the members are baby boomers, people who grew up during the cold war/space race. I think, and I have also read, that these time periods caused a surge of interest in amateur astronomy.

I hate to be gloomy, but it's obvious that my generation never had a moon landing or something of that sort to spark our interest in astronomy on a widespread level. I can't help but wonder what will happen in say 25-30 years when most of today's amateur astronomers are no longer observing? I worry that there won't be large astronomy clubs any more, and maybe light pollution will have spiraled out of control on the east coast. But I guess, there's a chance these kind of things will be the least of our worries in 25-30 years.

What are your thoughts?

Jordan Bramble

Ted Forte

There is prevalent belief that, because amateur astronomer enthusiasts are graying, the hobby is dying. I have a more optimistic outlook. Perhaps amateur astronomy is and always has been a pursuit of the older generation - the folks with the leisure time and the financial assets to pursue the hobby. If that is the case, then the good news is that the ranks of older folks keep growing and we should expect an ever increasing cache of people ready to start or come back to astronomy.

For some, astronomy is a lifelong pursuit, but for many others, it is something that they get into once they have the time and the resources to do so. I was in my 30's before I ever owned or even looked through a telescope. I was in my 40's when it became a serious hobby for me. So the fact that so few 20 year-olds are interested doesn't really disturb me. Once they get where they are going, (in their career and family journeys) they will find the stars. I'm certain of it.

Dale Carey

My story is a little different. When I was 19 and in the Air Force my roommate was referred to as "Stargazer Bill". he was 45 and had a 4.5" reflector. He was the one on base that was always having these get-togethers and he was known around the base (small auxiliary field of main base at Eglin Florida). He got me interested of course, and the next thing I knew I was "standing in" for him on occasions.

In 1965, while deployed to Viet Nam, Bill was killed in a helicopter crash. Several weeks after returning home we had a wake for him in the field house. Several people got up and read things about him. You can imagine the shock when the base commander was speaking and called my name. As normal, we all made wills before we shipped. He said, "One of Bill's requests was to give his telescope to his roommate."

Wow, I was overtaken with emotion (like I am now). From that moment on I was known as "Stargazer Dale" and felt an obligation to continue his quest of showing everyone

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everything he could. I found 66 Messiers with that rig and finally was able to purchase a "good" scope when I was 45. So I banged around on my own for a few years until I joined BBAA in 1998. I learned more in 1 year with the club than I had all my life.

Of course Ted and Kent were my main guys for info and I will always be indebted to them both. Hope you enjoy your "astronomer's dream retirement", Ted.

George Reynolds

As a kid, I was always interested in science, the stars and planets. I read a lot of science fiction, and was even a member of the Science Fiction Book Club for several years. I had binoculars off and on, and a cheap toy telescope which wasn't very good. I would lie on my back in the grass by my house at night, staring up into the stars, marveling at the beauty of God's creation and the Milky Way.

Throughout high school and college, academics took priority, and I thought little about the stars. After college it was the Army, then raising a young family became my primary concern. Then, in 1999, after all five of my kids were grown, I started thinking about astronomy again. I surfed the Web and found hundreds of amateur astronomy sites. I voraciously consumed all the information I could get my hands ... er ... eyes on. Everything I read said that the way to get started in astronomy was to (1) get binoculars and a star chart and learn the constellations in the night sky, (2) join a local astronomy club, (3) get some astronomy books from the public library, and (4) get a subscription to an astronomy magazine.

So after the start of the new year 2000, I did all that. I bought a \$25 pair of 10x50 binoculars at Wal-Mart and a cardboard planisphere from Barnes & Noble. I checked out *Turn Left at Orion*, *Nightwatch* and *The Backyard Astronomer's Guide* from the library. I sat out in my back yard at night, learning the constellations.

In July I went camping in Missouri, and while others were gathered around the campfire, I was out in the middle of a field,

with my binos, my planisphere, and a red flashlight, memorizing the constellations and their stars.

A few months after I got back home, I got online and found a local astronomy club. I emailed the contact and soon Ted Forte invited me to attend a BBAA meeting. I attended the November meeting and was the first one there. Shortly after, Dale Carey, then vice-president, arrived, and after an introduction, took me outside and pointed out some of the stars and planets. I was hooked. I joined that night, jumping in with both feet.

A month or two later, I bought my first telescope and tripod, from Dale Carey. I used that ShortTube 90-mm refractor for a year before I came down with "aperture fever". When another club member was selling his 8-inch Meade reflecting telescope, I bought it, and used it for a couple of years. Aperture fever set in again, so I sold my 8" Dob and was "the first kid on my block" to get an Orion 10-inch Intelliscope (now a "standard" for many BBAA members).

Getting back to the topic of "the greying of astronomy club members", I must agree with Ted, that it is nothing to worry about. As a youngster, I was interested, but couldn't afford it. As a young family man, I had other priorities for my time and money. After my kids were grown and gone, I had some money to spend on myself, and then, at age 55, I got into amateur astronomy. I think there are a lot of greying Baby Boomers who will be doing the same thing. After the Boomers, another generation will follow.

Our mission should be to get the kids interested now, so that when they are older and more able to be involved, the desire will be there, and they will fill the ranks of club members and take our places as time marches on. The BBAA just needs to keep doing what we are doing, conducting public Skywatches, going to libraries, schools, and Scout groups, doing Garden Stars and Boardwalk astronomy, sharing the fun and wonder of the night sky, and making the night sky available to all. We will continue to follow our motto of "bringing astronomy to the people of Hampton Roads."

Doing Science with a Spacecraft's Signal

By David Doody

Mariner 2 to Venus, the first interplanetary flight, was launched August 27, fifty years ago. This was a time when scientists were first learning that Venus might not harbor jungles under its thick atmosphere after all. A Russian scientist had discovered that atmosphere during the rare Venus transit of 1761, because of the effects of sunlight from behind.

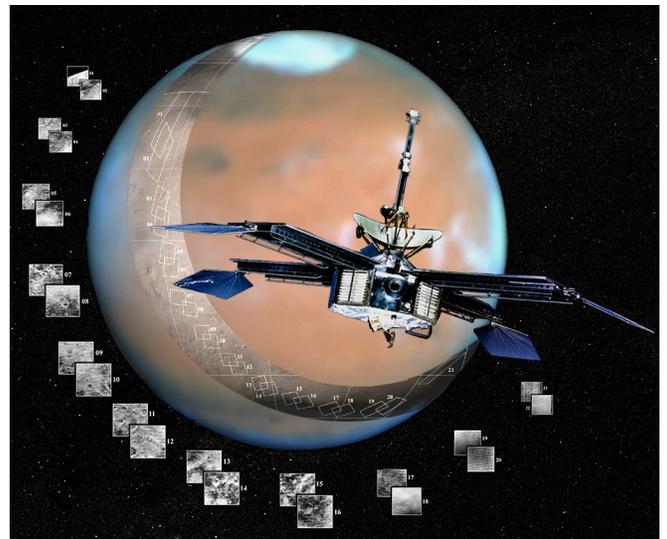
Mariner 2 proved interplanetary flight was possible, and our ability to take close-up images of other planets would be richly rewarding in scientific return. But it also meant we could use the spacecraft itself as a "light" source, planting it behind an object of our choosing and making direct measurements.

Mariner 4 did the first occultation experiment of this sort when it passed behind Mars as seen from Earth in July 1965. But, instead of visible light from the Sun, this occultation experiment used the spacecraft's approximately 2-GHz radio signal.

The Mariner 4 experiment revealed Mars' thin atmosphere. Since then, successful radio science occultation experiments have been conducted at every planet and many large moons. And another one is on schedule to investigate Pluto and its companion Charon, when the New Horizons spacecraft flies by in July 2015. Also, during that flyby, a different kind of radio science occultation experiment will investigate the gravitational field.

The most recent radio science occultation experiment took place September 2, 2012, when the Cassini spacecraft carried its three transmitters behind Saturn. These

three different frequencies are all kept precisely "in tune" with one another, based on a reference frequency sent from Earth. Compared to observations of the free space for calibration just before ingress to occultation, the experiment makes it possible to tease out a wide variety of components in Saturn's ionosphere and atmosphere.



Mariner 4 was the first mission to include a radio occultation experiment.

Occultation experiments comprise only one of many categories of radio science experiments. Others include tests of General Relativity, studying the solar corona, mapping gravity fields, determining mass, and more. They all rely on NASA's Deep Space Network to capture the signals, which are then archived and studied.

Find out more about spacecraft science experiments in "Basics of Space Flight," a website and book by this author, <http://jpl.nasa.gov/basics>. Kids can learn all about NASA's Deep Space Network by playing the "Uplink-Downlink" game at <http://spaceplace.nasa.gov/dsn-game>.

Check Out This Cool Web-Based Tool!

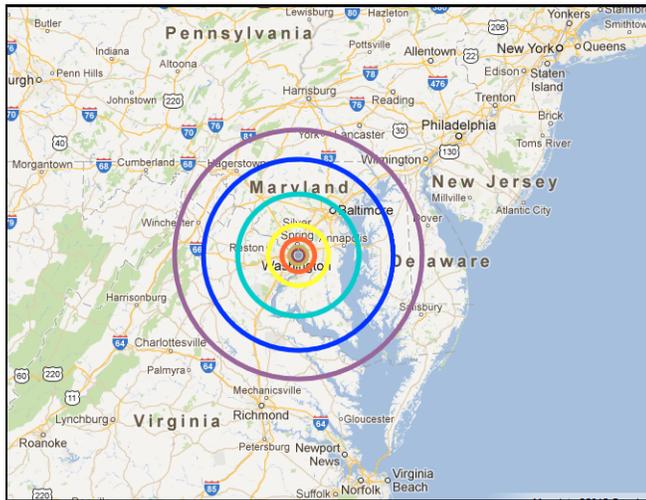
Scale solar System Map Generator

Grasping the scale of the cosmos is difficult, and we all have used different analogies when sharing our hobby with friends, family and the general public. I like to point out how Voyager I was launched in 1977 and is now roughly 17 light-hours away from us. Imagine traveling to the closest star, Proxima Centauri, which is 4.2 light years away. At this rate, it would take Voyager nearly 77,000 years to reach it!

Well, if you find yourself making these analogies at outreach events, BBAA member Jim Tallman recently found a web-based tool that can be used to help astronomy enthusiasts wrap their brain around the size of the solar system. The **Solar System Scale Model Calculator** helps a user overlay a scale model of the solar system on a google map. Only three inputs are required: the diameter of the sun in the model, and the latitude/longitude coordinates of the sun's location on the map. Users can make a scale model at any location in the world, or use one of the site's pre-defined examples at famous locations.

For instance, if one were to create a scale model of the solar system centered at the Capitol in Washington D.C. with the sun the size of the Capitol Dome (96 feet), the tool would create a map similar to the one shown in the figure to the right. In this model Solar System, the outer purple line is Pluto's orbit, which extends as far south as Kings Dominion. Zooming in to see the other extreme, Mercury's orbit reaches only to the

Smithsonian Air and Space museum on the Mall, just a ten minute walk from the Capitol. Other notable distances: Venus' orbit reaches the Washington Monument, Earth is close to the Vietnam Veteran's Memorial Wall and Jupiter's orbit nearly coincides with the Beltway. Starting to get a feel for the scale of our solar system?



To play around with this model and put the sun on your driveway, like Jim Tallman did, then check out the calculator for yourself at:

<http://tinyurl.com/SolarSystemCalc>

Try it out, and, in the words of Bill Mclean, it'll put you over the top on the geekitude scale!

Living Up to Our Club's Ideals: A Challenge

The Sept. 7 Skywatch at NWRP went well and the skies were excellent. Jim Tallman, Bill Newman, Chuck Jagow, Mark Gerlach and Georgie June attended. The Milky Way made its self known and was very easy to see. A few of the guests and I talked about where the center of our galaxy was, and the Teapot was very clear and provided a nice jump onto the topic.

All in all it was a successful night but it would have been more successful if we had a bit more club presence. Sadly, I think this is the club's worst showing in the two years I've been with BBAA. It seems our core of outreach folks has decreased to only five or six, out of a club of more than 60!

Remember, our Club Motto is "Bringing Astronomy to the People of Hampton Roads." Also, you should ask yourself what you are getting for the dues you pay? These events are also for newer

members to come out and learn from the ones who have been doing this hobby for awhile.

So I want to challenge those members of the club who do not participate in outreach events to come out, have fun and learn, so you can help us "Bring Astronomy to the People of Hampton Roads". We do not bite (well not hard anyway). We don't laugh at other peoples scopes either. Yes, there are quite a few large expensive scopes out there, but we all started small, and many of us still own our smaller scopes and use them regularly.

So come out and let us help you learn the skies. Let us help you learn how to use your gear! All you have to do is pick something each time to learn and then share that with the guests. Eventually you will have a lot to share with them.

Jim Tallman



September/October 2012

BBAA Events	Special Outreach	Astronomical Events
	9/21 Night Hike at NWRP	9/22 First Quarter
10/4 Monthly Meeting	9/25 Boardwalk Astronomy	9/29 Full Moon
10/5 Skywatch at NWRP		10/3 Venus & Regulus less than 0.2 deg apart
10/13 Nightwatch @ Chippokes State Park	10/18 Science Night at Greenbrier Intermediate School	10/7 Last Quarter
10/19 Garden Stars @ NBG		10/14 New Moon

Sneak Peek into November

Thu 11/01/2012 BBAA Monthly Meeting, TCC Campus, 7:30 pm

Fri 11/09/2012 Skywatch at Northwest River Park

Sat 11/17/2012 Nightwatch at Chippokes State Park, Surry VA.

Fri 11/30/2012 Garden Stars at Norfolk Botanical Gardens, 7:30 pm

