

BACK BAY observer

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



EPHEMERALS january 2012

01/05

BBAA Monthly Meeting
TCC VA Beach
Building J, Room JC-12
7:30 pm

01/06

Garden Stars
Norfolk Botanical Gardens
7 pm

01/13

Skywatch
Northwest River Park

01/21

Nightwatch
Chippokes State Park
Surry, VA

Looking Up!

Well here it is, my very first Looking Up article. I still can't believe it; not only is it 2012, my second semester of my senior year, but I'm president of a 34 year old organization. Crazy, right? I thank you all for putting me in to this office, as nerve-wracking as this could be. I look forward to the next year, and to helping the BBAA be the best it can be. We already do so much for the community, and I hope that we can continue to embrace our motto of bringing astronomy to the people of Hampton Roads.

There are a few things that I would like to do in the upcoming year. First and foremost, I would like to make sure that we respond quicker to our invitations to do outreach. I understand that sometimes it gets old, and we lose the newness. But I would highly encourage all of our members to participate in any and all outreach events. It is by far the best way to learn about the sky. Secondly, I would like to have more presentations given by members for the meetings. We have a wellspring of knowledge in our club, and we need to use it.

We'll see how this year shakes out... I have a lot coming up during 2012. But I think that it will be the best year yet. And I hope that that doesn't only count for me, but for the BBAA as well.

Let's shoot for the moon; even if we miss, we'll land among the stars.

Clear Skies and Dark Nights,

Courtney Flonta



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Dawn Takes a Closer Look

by Dr. Marc Rayman

Dawn is the first space mission with an itinerary that includes orbiting two separate solar system destinations. It is also the only spacecraft ever to orbit an object in the main asteroid belt between Mars and Jupiter. The spacecraft accomplishes this feat using ion propulsion, a technology first proven in space on the highly successful Deep Space 1 mission, part of NASA's New Millennium program. Launched in September 2007, Dawn arrived at protoplanet Vesta in July 2011. It will orbit and study Vesta until July 2012, when it will leave orbit for dwarf planet Ceres, also in the asteroid belt.



traveling from Earth to Vesta (and later Ceres) requires ion propulsion is the challenge of tilting the orbit around the sun.

Dawn can maneuver to the orbit best suited for conducting each of its scientific observations. After months mapping this alien world from higher altitudes, Dawn spiraled closer to Vesta to attain a low altitude orbit, the better to study Vesta's composition and map its complicated gravity field. Changing and refining Dawn's orbit of this massive, irregular, heterogeneous body is one of the most complicated parts of the mission. In addition, to meet all the scientific objectives, the orientation of this orbit needs to change.

This full view of the giant asteroid Vesta was taken by NASA's Dawn spacecraft, as part of a rotation characterization sequence on July 24, 2011, at a distance of 5,200 kilometers (3,200 miles). Credit: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA

These differing orientations are a crucial element of the strategy for gathering the most scientifically valuable data on Vesta. It generally requires a great deal of maneuvering to change the plane of a spacecraft's orbit. The ion propulsion system allows the probe to fly from one orbit to another without the penalty of carrying a massive supply of propellant. Indeed, one of the reasons that

Although the ion propulsion system accomplishes the majority of the orbit change, Dawn's navigators are enlisting Vesta itself. Some of the ion thrusting was designed in part to put the spacecraft in certain locations from which Vesta would twist its orbit toward the target angle for the low-altitude orbit. As Dawn rotates and the world underneath it revolves, the spacecraft feels a changing pull. There is always a tug downward,

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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: BBAAErica@yahoo.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 January meeting is at the Plaza Middle School in Virginia Beach.** Directions available at www.backbayastro.org.

BBAA Internet Links

- BBAA Web Site**
<http://www.backbayastro.org>
- Yahoo! Group**
<http://tech.groups.yahoo.com/group/backbayastro>
- BBAA Observer Newsletter**
www.backbayastro.org/observer/newsletter.shtml

Space Place, continued from page 2

but because of Vesta's heterogeneous interior structure, sometimes there is also a slight force to one side or another. With their knowledge of the gravity field, the mission team plotted a course that took advantage of these variations to get a free ride.

Keep up with Dawn's progress by following the Chief Engineer's (yours truly's) journal at <http://dawn.jpl.nasa.gov/mission/journal.asp>. And check out the illustrated story in verse of "Professor Starr's Dream Trip: Or, how a little technology goes a long way," at <http://spaceplace.nasa.gov/story-prof-starr>.

The flight plan is a complex affair of carefully timed thrusting and coasting. Very far from home, the spacecraft is making excellent progress in its expedition at a fascinating world that, until a few months ago, had never seen a probe from Earth.

This article was provided courtesy of the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Welcome New Members!

BBAA Meeting Minutes

December 1, 2011

The December, 2011 meeting was called to order at 7:36 p.m. in room JC-11 at TCC Virginia Beach Campus by club president Mark Gerlach. Those in attendance were Neill Alford, Kenny Broun, Courtney Flonta, Amy Koenig Gardner, Mark Gerlach, Dino Giangregorio, Mary Giangregorio, Curt Lambert, Matt McLaughlin, George Reynolds, Bernie Strohmeier, and Kevin Weiner.

Treasurer's report: \$1,630.13 general fund, \$3,710.12 scholarship fund, \$5,340.25 total. The treasurer is to renew the Post Office box in January.

Secretary's report: The minutes of the November meeting are posted on the BBAA Web site.

President Mark Gerlach announced that long-time BBAA member Ted Forte will be leaving in the spring of 2012. He will be retiring and moving to Arizona. He is already purchasing a house there . . . with a 30-inch telescope included. His club duties will be split among several BBAA members. RRRRT functions will be handled by Kevin Weiner and Lawrence "Bird" Taylor, with assistance from Matt McLaughlin. Backbayastro Yahoo group list ownership will go to George Reynolds. Liaison with Northwest River Park for Night Hikes and Skywatch has not yet been determined, but Jim Tallman and Garry Mitchell are under consideration.

Another announcement was that newsletter editor Erica Smith-Llera will be relinquishing that job after February 2012. She is due to deliver twins and will have her hands full. Any interested in taking over the newsletter, contact Mark or president-elect Courtney Flonta.

Calendar items for December: Saturday, December 3 "Shiver Fest" at Mount Trashmore; Skywatch Friday, December 16. The annual BBAA anniversary luncheon will be held Saturday, December 17 at Fire and Vine in the Hilltop area of Virginia Beach. Nightwatch at Chippokes Plantation State Park is scheduled for Saturday, December 24. The next BBAA meeting will be January 5, 2012. The meeting location is still to be determined, but will probably be at the Virginia Beach Planetarium at Plaza Middle School.

New members joining the club tonight are Dean ("Dino") and Mary Giangregorio. Dino has already been active on Backbayastro.

Observing Reports and Miscellany: Curt Lambert said he saw his first shadow transit of one of the moons of Jupiter at the last Skywatch, Nov. 18. Mark Gerlach recently got a new secondary mirror for his 10-inch Dob. Kevin Weiner spoke about Starry Night Pro "Help Desk webinars" to promote sciences and astronomy. He said they also have a newsletter. Someone in the club could do something in SNP to demonstrate basic use by "newbies", and thereby promote the club in the newsletter.

Mark Gerlach showed a couple of NASA DVD videos, demonstrating the United Launch Alliance (ULA) at the Canaveral launch complex, and some information concerning the construction and launch of the GLAST mission (Gamma Ray Large Area Space Telescope). GLAST will be important to locate and analyze Gamma Ray Bursts (GRBs). Gamma rays are the most energetic form of energy known in the universe. The mission will enable NASA to provide collaboration between particle physicists and astrophysicists worldwide. GLAST's instruments will convert each gamma ray into an electron and a positron on a grid to detect where the gamma ray burst came from.

The meeting was adjourned at 8:42 pm. Many members reconvened in the TCC observatory behind the science building, on Prof. Ken Broun's invitation. Prof. Broun had the telescopes running, and students and guests observed Jupiter and several star clusters.

NOTE: Originally called the Gamma-Ray Large Area Space Telescope (GLAST), the mission was recently renamed for the physicist Enrico Fermi, and is now called the Fermi Large Area Telescope (LAT), the principal scientific instrument on the Fermi Gamma Ray Telescope spacecraft. The Fermi spacecraft was launched into a near-earth orbit on 11 June 2008. The design life of the mission is 5 years and the goal for mission operations is 10 years.

Observing on the Middle Peninsula

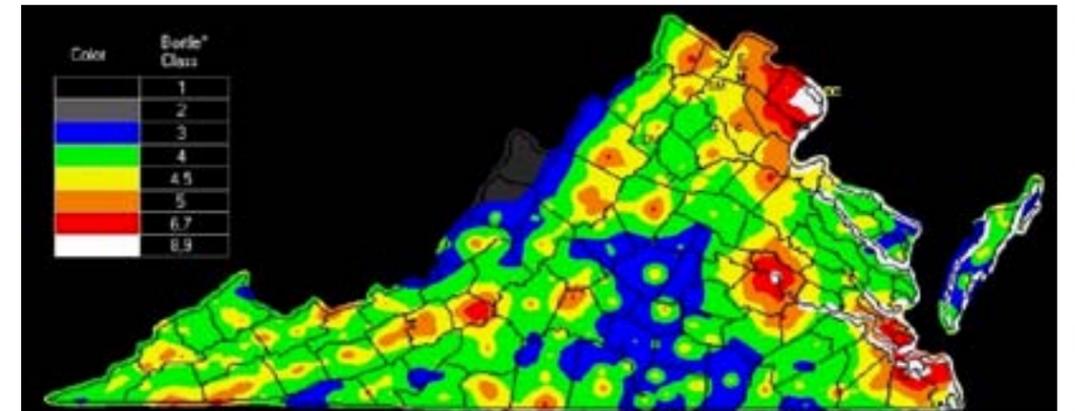
by Nick Anderson

Taking advantage of the good forecast, I drove out to the Middle Peninsula again to do some observing. I began around 2:30 am and finished up at 5:30. I didn't cover too many new objects this time (I'm waiting on the O-III filter for the faint nebulae), but one particular new object I enjoyed was NGC 3132 (Eight Burst Nebula). Being that I mostly only covered the Messier objects before beginning the Caldwell list, I had only seen 4 planetary nebulae before. Just like with NGC 2392 (Eskimo Nebula) which I observed only 7 days ago, both were not easy for me to find because they looked nearly stellar at low power. I'm assuming that I'll need more aperture and higher power to really enjoy planetary nebulae.

I think what I like viewing the most in my 8-inch are open clusters. They generally don't require too much aperture and I can resolve them. Unlike globular clusters which look relatively the same to me each time, open clusters tend to appear unique and different.

Transparency was a 10/10 and I went to re-observe several Messier objects, only to have the Messiers devour up the remainder of my time. In my new dark observing site, it's like looking at completely new objects! I had never observed M98's spindle shape (just looked a smudge before) and it was only my second time observing M104 (I first observed it in December when the Full Moon was out). M104's sombrero shape was very impressive to view when using averted vision. I wonder if an 8-inch can pick up the dust lanes? M104 definitely is now my favorite galaxy to observe (formerly M82).

Now that I've seen what a real dark sky is supposed to look like, I'm surprised that I've gotten as far as I have with all of my previous light-polluted sites. I originally set up at Sandbridge (bad idea because I had to clean my mirrors a lot sooner than expected) where the Milky Way could be seen on a good night, but there were still a lot of nearby lights. In Blacksburg where the elevation is greater, there is still moderate to heavy skyglow westward depending if the VT stadium lights are on.



Dark Sky Sites in Virginia

A list of clear sky sites, including observatories, with breakdown of daily sky previews.
http://cleardarksky.com/csk/prov/Virginia_charts.html

A list of dark-sky sites in Virginia
http://www.observingsites.com/ds_va.htm

Dark Sky Virginia
<http://www.darkvirginiasky.org/>

Bringing in the New Year

by Mark Ost

Not having what others might recognize as a life, Stan and I brought in the New Years keeping watch on the sky in case of alien invasion or something like that.

We started around 1030 and went until 2 in my case...who knows for Stan?

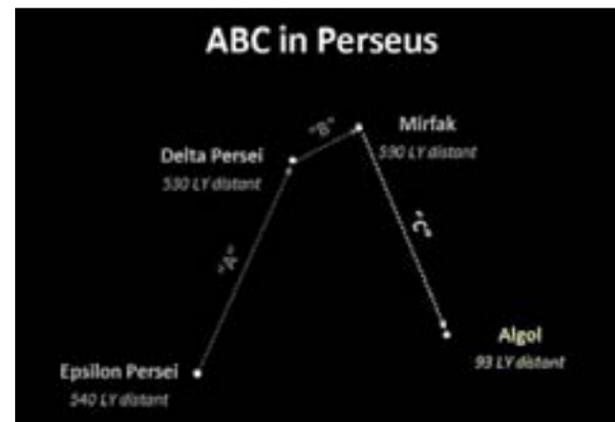
The moon went down around midnight so we had an astronomical ball dropping. Called the party crowd at Kent's and they seemed to be too toasted to see much of anything no matter what the optics.

Mars put in an appearance around 1:45. Seeing was maybe an 8 so it was possible to see some detail. An 8 is pretty good for winter so we were happy with that. The polar caps was quite bright with a very distinctive dark band around the rim of the cap. The opposite pole of the planet may have had a polar hood but it was difficult to see exactly and only had intimations of this feature. Mars' blank face may have been towards us as not too much else could be seen but things are getting better day by day. I may try again early to have another look.

In addition, Kent and I for the first time observed the minima of Algol. There is a convenient star next to it that can be used as a gauge of brightness. Sure enough it changed over the course of a couple of hours. Not sure who the first to notice that was but it can be observed. The best short period eclipsing variable is U Saggitta. That one changes fast and is fun to observe telescopically.

We have a new observatory cat that stayed with us most of the night sharing the views. Around 1 things started to get a bit cool, somewhere around 35. I ran out of gas about 2.

Happy New Years to you all and look forward to another years observing.



watchingtheworldwakeup.blogspot.com/2011/01/abc-in-perseus.html

The Algol System

In the constellation Perseus, the Algol system is made up of three stars, two of which orbit each other closely. Every 68.75 hours, it's brightness dims and brightens quickly. One star is being swung around the other much like a tetherball; its matter is even pulled into a teardrop shape.

Also known as the Demon Star, the Algol System was first recorded by Geminiano Montanari in 1667, while John Goodricke noted its periodic variability in 1783. It wasn't until 1881 that the reason for the variability was discovered, as Edward Charles Pickering presented his data at Harvard in 1881.

A Perfect Night for Reflection Nebulae

By Mark Ost

After a roller coaster ride with the weather, the night turned out to be one of the best nights in memory lately. Usually I don't set up after 8 but the sky was so dark and transparency a 10++ I had to get outside. The wind had dried the ground to a remarkable extent and the temp was very moderate. Clouds would roll in and out but between them absolutely clean air. I was able to take on quite a few obscure reflection nebula in Orion and Monoceros.

NGC 2149 a reflection nebula in Monoceros. Not too hard to see. It lies off the beaten path and I doubt rarely visited. Appears extended and involved with several stars.

NGC 2170 a bit brighter, again off the path. There may be a couple of sections to this dim nebula.

NGC 2182 A bit more of a challenge. In the same area. Need to know where it is. Unlikely to run across by accident.

NGC 2183 and NGC 2185, a pair of very close nebula. Close examination shows the pair to be separate and surrounding two stars very close to one another. Take time to look closely at this one to see the separation.

Hubble's Variable. Nice to follow year to year as it changes constantly.

NGC 2316. An obscure reflection nebula in Monoceros. Like a small version of Hubble's. Quite faint.

NGC 2112 a misty open cluster which serves as the guide post to Barnard's Loop, a supernova remnant in Orion. The bright part of the loop is visible with a very wide eyepiece and a H Beta filter. This is a very large object encircling Orion. You can only see parts, not the whole.

Saw the Horse head in the five with the right power combination.

Quite a night. Rainy day and then whamo what a great night. Started to cool off around 2300. I wrapped up then as I was getting tired. Would have stayed up later as the sky was fine but can't use all my energy in one night.



Monoceros

A constellation on the celestial equator meaning "unicorn." Named in the early 17th century by Dutch cartographer Petrus Plancius, other records seem to indicate it was known first by the Persians and then by European observers by the 13th century. William Herschel discovered Beta Monocerotis, a triple star system, and described it as "one of the most beautiful sights in the heavens."

It is bordered by Orion to the west, Gemini to the north, Canis Major to the south, and Hydra to the east.



BACK BAY *observer*

January 2012

BBAA Events	Special Outreach	Astronomical Events
05 BBAA Monthly Meeting, VB		02 First Quarter
06 Garden Stars at Norf. Bot. Gar. 7pm		
		10 Full Moon
13 Skywatch at NWRP		
		17 Last Quarter
21 Nightwatch at Chippokes State Park		
		24 New Moon

Sneak Peek into February

Thursday 02/02/2012 Meeting at TCC VA Beach, Building J, Room JC-12 at 7:30 p.m.

Friday 02/03/2012 Garden Stars at Norfolk Botanical Gardens at 7:00 p.m.

Friday 02/17/2012 Skywatch at Northwest River Park

Saturday 02/25/2012 Nightwatch at Chippokes State Park, Surry VA.

