



EPHEMERALS APRIL 2009

DATE	WHEN	WHAT & WHERE
1	7:00p	ANIMAL CONSTELLATIONS @ Bayside Library, VA Beach
2	7:30p	Monthly Meeting @ TCC in VB
3	7:00p	GARDENSTARS @ Norfolk Botanical Gardens
3	Dusk	100 Hrs. ASTRONOMY @ Mt. TRASHMORE
4	10:00a	ASTRONOMY DAY @ Chesapeake Main Library
4	7:00p	YURI'S NIGHT @ VA Air & Space Center, Hampton
6	6:00p	SCIENCE FAIR @ Arrowhead Elementary, VB
17	1:00p	STARS 4 SPCA @ VB SPCA
17	Dusk	Skywatch @ NWRP Equestrian Area
24	Dusk	Nightwatch @ Chippokes Plantation

Looking Up!

Ahhh.....a Blue Ridge morning! For me it was "Home by the Dome" of the RRRT with my camper on Fan Mountain. Yours truly, Stephen Hamilton, and Dr Salgado met up on Mount Oliver to open and refresh the dome and the 24" RC scope on the afternoon of Friday, March 22nd. The objective was to operate the system 24/7 for many days if not indefinitely and to certify that it could operate in a safe mode while unattended on its robotic software. Dr McDavid our U of VA partner has been working hard together with Dr Salgado of NSU to iron out and tweak the programming glitches that have plagued us in the past.

Matt McLaughlin and Neill Alford took up the reins on Sunday through Tuesday evening and took the dome and scope through many simulations and made sure that dome opening and closing were smoothly accomplished both with clear and cloudy skies.

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Yeomen work for all but well worth the effort. It is hard to believe that this club project has extended over three plus years and we are finally on the cusp of full automation. Ben Loyola and crew came up last Friday to do an install of some final equipment too.

I am pleased to say that this truly group effort is really working out. It seems like a long time since Kevin Weiner and I did those long night seeing experiments in the tall grass on Fan to help position the RRRT prior to the first shovel of dirt being turned. And not to forget all the sweat and long weekends of labor from Ted, Kevin, Ben, Matt, Neill, and others so as to get us to this point. Well done all!

Well, it is the fourth month of the 400th year since Galileo turned his new telescope towards the Moon and Jupiter to ignite the science of astronomy in a new age of enlightenment. The club has extensive activities planned for public outreach. Don't miss the opportunity to participate! Come to the April meeting and plan with us for this astronomical year!

Bruce "Doc" Bodner

The Back Bay Amateur Astronomer's Observer

March Meeting Minutes

The March meeting was called to order by Vice President Chuck Jagow at approximately 7:30 PM in the absence of President Bruce Bodner.

Members in Attendance:

There were 30 members and guests in attendance at the March meeting of the Back Bay Amateur Astronomers held in the Science building (Room JC12) of Tidewater Community College in Virginia Beach. Members attending included:

Neill Alford, Bruce Bodner, Jordan Bramble, Kenny Broun, Gerry Carver, Larry Channel, Bryan Condrey, Jeff Dunn, Tony Flonta, Courtney Flonta, Ted Forte, Mike Galvas, Jay Garrard, Mark Gerlach, Hunter Hughes, Chuck Jagow, Karen Jagow, Erica Smith (New Member), Matt McLaughlin, Brandee Newmiller (New Member), Josh Newmiller (Mom Brandee), John Norman, Bill Powers, John Pycior, Kevin Swann, Matt Swingle, Bird Taylor, Larry Wade, Kevin Weiner and Melissa Wilson.

Treasurer's Report:

\$2,697.54	Club Operations
\$2,159.80	Scholarship

\$4,857.34	Total

Secretary's Report:

None. The previous meetings minutes are available on the Internet for examination.

RRRT Report:

March 15 - April 17 scheduled for RRRT endurance testing.

ALCOR Report:

None

Old Business:

None.

New Business, Announcements and Observing Reports:

One new member and one returning member to report. Introducing Brandee Newmiller and her son Josh. New/Returning member Erica Smith rejoined the club. Welcome to

BBAA!!!

A number of members reported seeing comet Lulin.

Astronomy Day at the Chesapeake library -- Sign Up Sheet on the Yahoo Group.

Northwest River Park celebrate astronomy event is shaping up. Waiting on insurance paperwork to finalize the agreement with the city.

100 Hours of astronomy, April 3rd at Mt Trashmore. If you want to drive in with your scope, you will need to arrive before 6:00 PM.

There will be an astronomy event associated with the boy scouts at camp Pipsico.

Galileoscopes: After significant discussion the club voted to pursue the purchase of 100 Galileoscopes to be used mainly for IYA events. Chuck Jagow donated \$205.00 to help defray the cost of the Galileoscopes

The calendar of club events through May 2009 was discussed and a copy was passed out .

Main Presentation:

Another "Sky At Night" by Sir Patrick presentation.

Once the presentation was completed; the meeting was adjourned at 9:11 PM, Thursday, March 5, 2009.

Matt McLaughlin
BBAA Secretary

NOTICE NOTICE NOTICE NOTICE

I have been performing the duties of Editor of the Newsletter since the previous Newsletter Editor quit..

It is time for someone else with new, fresh ideas and enthusiasm to take the reins and take over as the Newsletter Editor for the Back Bay Amateur Astronomers. The job is rewarding and fun. But I am finding myself with less and less time because of my professional duties at work.

I will continue as Newsletter Editor until someone Volunteers. The new Editor should have access to Microsoft publisher or equivalent software.

Chuck Jagow

The Back Bay Amateur Astronomer's Observer



APOLLO UPGRADE

Provided by the Jet Propulsion Laboratory

The flight computer onboard the Lunar Excursion Module, which landed on the Moon during the Apollo program, had a whopping 4 kilobytes of RAM and a 74-kilobyte “hard drive.” In places, the craft’s outer skin was as thin as two sheets of aluminum foil.

It worked well enough for Apollo. Back then, astronauts needed to stay on the Moon for only a few days at a time. But when NASA once again sends people to the Moon starting around 2020, the plan will be much more ambitious—and the hardware is going to need a major upgrade.

“Doing all the things we want to do using systems from Apollo would be very risky and perhaps not even possible,” says Frank Peri, director of NASA’s Exploration Technology Development Program.

So the program is designing new, more capable hardware and software to meet the demands of NASA’s plan to return humans to the moon. Instead of staying for just a few days, astronauts will be living on the Moon’s surface for months on end. Protecting astronauts from harsh radiation at the Moon’s surface for such a long time will require much better radiation shielding than just a few layers of foil. And rather than relying on food and water brought from Earth and jettisoning urine and other wastes, new life support systems will be needed that can recycle as much water as possible, scrub carbon dioxide from the air without depending on disposable filters, and perhaps grow a steady supply of food—far more than Apollo life-

support systems could handle.

Next-generation lunar explorers will perform a much wider variety of scientific research, so they’ll need vehicles that can carry them farther across the lunar surface. ETDP is building a new lunar rover that outclasses the Apollo-era moon buggy by carrying two astronauts in a pressurized cabin. “This vehicle is like our SUV for the Moon,” Peri says.

The Exploration Technology Development Program is also designing robots to help astronauts maintain their lunar outpost and perform science reconnaissance. Making the robots smart enough to take simple verbal orders from the astronauts and carry out their tasks

semi-autonomously requires vastly more powerful computer brains than those on Apollo; four kilobytes of RAM just won’t cut it.

The list goes on: New rockets to carry a larger lunar lander, spacesuits that can cope with abrasive moon dust, techniques for converting lunar soil into building materials or breathable oxygen. NASA’s am-

bitions for the Moon have been upgraded. By tapping into 21st century technology, this program will ensure that astronauts have the tools they need to turn those ambitions into reality.

Learn more about the Exploration Technology Development Program at www.nasa.gov/directorates/esmd/aboutesmd/acd/technology_dev.html. Kids can build their own Moon habitat at spaceplace.nasa.gov/en/kids/exploration/habitat.



Image Caption:

The Chariot Lunar Truck is one idea for a vehicle equal to the lunar terrain. Each of the six wheels pivot in any direction, and two turrets allow the astronauts to rotate 360°.

The Back Bay Amateur Astronomer's Observer

B B A A I N F O

The BBAA meet the first Thursday of every month. While school is in session we meet at the VA Beach TCC campus.

The April meeting will be on Thursday April 2nd at 7:30 PM at the Tidewater Community College Campus in Virginia Beach.

WHERE IS THE MEETING?

TIDEWATER COMMUNITY COLLEGE CAMPUS

The TCC Campus is located in Virginia Beach off of Princess Anne road. The following should help you locate the campus.

FROM Interstate I-64:

Proceed to the I64 / I264 junction and take I264 East .

Take the S. Independence Exit, 17A, right hand lane and proceed (.000000040879639 AU) (3.8 mi).

Turn LEFT onto Princess Anne road and proceed (.000000011833579 AU) (1.1 mi).

Turn LEFT onto Concert Drive and proceed (.000000001426233 AU) (700').

Turn LEFT and then turn RIGHT on University Drive go (.000000002151559 AU) (0.2mi).

Proceed to College Crescent and then park in one of the lots in front of the Advanced Technology Center.

The Science Building is immediately south of the ATC building. Walk toward the ATC entrance, but bear left, the Science building is straight ahead. Find the rounded part, this is the Planetarium. Locate the stairs nearest the planetarium and upstairs you will find classroom JC12 on the next floor.

COX COMMUNICATIONS CAMPUS

The COX Communications Campus is located in Chesapeake's Greenbrier section. The following should help you locate the facility.

FROM Interstate I-64:

Take exit 289B (between the Indian River & Battlefield exits).

South on Greenbrier Parkway (.7382 miles).

Turn RIGHT onto Eden Way West (.9231 miles).

Turn RIGHT on Crossways Blvd (.88901 miles).

Turn Right into the Cox Campus

The meeting is usually held in the Silver room located on the North side of the facility. Enter and tell the guard that you are with the BBAA and they will issue a badge and direct you to the room.

BBAA INTERNET LINKS

BBAA WEB SITE

<http://www.backbayastro.org>

YAHOO GROUP

<http://groups.yahoo.com/group/backbayastro>

BBAA OBSERVER NEWSLETTER

<http://www.backbayastro.org/newsletters/newsletter.shtml>

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What do you want to do?

OBSERVER INFO

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/newsletters/newsletter.shtml>

Please submit articles and items of interest no later than the 15th of April for the May issue. Please submit all items to:

ObserverBBAA@cox.net / chuck@jagowds.com

OR

BBAA Observer

P.O. Box 9877

Virginia Beach, VA 23450-9877

The Back Bay Amateur Astronomer's Observer

THE EFFECTS OF EXIT PUPIL

Editors Note:

This article is part of a source of information being made available to astronomy newsletter editors. The AAVSO collects astronomy related material and makes it available for republication as long as the author is given credit, their blog or original publication is credited and a link is displayed to their blog or publication is provided.

Chuck Jagow

Provided by By SEAN WELTON,
[Visual Astronomy](#)

Every so often, you might hear astronomers mention the exit pupil of certain eyepiece/telescope combinations. While exit pupil is more commonly discussed when considering binoculars, it is also quite important to telescope users. So what does it all really mean?

Also, how can this exit pupil affect my views through



a telescope?

The exit pupil is the image of the objective element as projected by the eyepiece. Thus, all light collected by the telescope passes through the exit pupil. Ideally, the exit pupil of the telescope should be approximately the size of the pupil in your eye. Any larger and light might be wasted by not entering the eye's pupil.

Calculating Exit Pupil

Exit pupil is defined as the objective diameter divided by the magnification. So to find your telescope and eyepiece combo's exit pupil, take the focal length of

your telescope and divide it by the focal length of your eyepiece. This is the magnification of your telescope and eyepiece combo. Now, divide the objective diameter by this magnification. Make sure you do this all in the same units, i.e. completely in millimeters. The result is your telescope and eyepiece combo's exit pupil. So,

$$\text{Exit Pupil} = \frac{\text{Objective Diameter}}{\text{Magnification}}$$

For example, my telescope has an objective diameter of 254 mm. If I use a magnification of 40x, I would have an exit pupil of 6.35 mm, near the 7mm "maximum" available to young eyes.

Find Your Eye's Pupil Size

In order to fully understand the effects of exit pupil, you should know the maximum dilated pupil size of your own eyes. This sounds like it might be difficult to measure, but is not as hard as it sounds. Go into a dark room and let your pupils adjust for a minute or two. Take a piece of dark paper, and cut two slits in it, spaced a certain distance apart. Start with 7 mm and work down. You will be able to see two images through these slits. When the two images just barely touch, you have reached your pupil size. Pupil size typically decreases with age. Young people may have pupil sizes over 7 mm, but will sharply decrease between the ages of 30 and 60 to 6 mm and below.

Also, check out Mang's page on [how to find your pupil size using a camera!](#)

The importance of this is that if you have a pupil size of 6 mm, any exit pupil over 6 mm is a waste of light! Thus you are not using the full aperture of your telescope. Using an exit pupil that is the same size of your eye's pupil will allow you to see the widest field of view and see the "richest field" your telescope can provide. Keep this in mind when pricing your next eyepiece purchase!

The Back Bay Amateur Astronomer's Observer

OBSERVER'S CORNER

February 2009 - It's now 4:00 am Saturday morning. I can't believe you guys got me up for this. I was expecting to just barely see the comet naked eye.

Instead, I just can barely see it with 10x30 binoculars, and then only with averted vision. In the 4" it's also a major disappointment. Once the shock of how dim it is wore off, comet Lulin began to look a little better. Through the 10", it's much better. I even detected a faint, wide tail and suspect an anti-tail.

True, I observed it within city limits during the light of the near full Moon but I'm disappointed and grumpy and going back to bed.

Kent Blackwell

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January 2009 - Had the pleasure of observing alone last night under very transparent skies so I figured it was a good time to take on a challenge object. Mayall II or G-1, a globular cluster belonging to the Andromeda Galaxy is a challenging target at 13.7 magnitude. As the brightest globular for Andromeda it might just be in range of the 4 inch on a very good night. All others are just too dim for 4 inches. The cluster has been seen in six inch apertures and some reports of seeing it in 4 inches. Having seen 13th magnitude galaxies I figured it might be doable.

The first challenge is finding the cluster. A detailed chart is required since low powers needed to navigate Will not show the cluster. Took around twenty minutes to be sure of the field and then position the field of view over where the cluster should be. Switching to high power I looked for the two stars that flank the cluster. This is definitely averted vision and dark cloth work. I found the cluster and amazingly it altered from stellar to not quite stellar. It would come and go right at the edge of vision but I observed it enough to be very confident of claiming this one. Not sure if it is the toughest thing I've done but definitely ranking in the top two or three. The cluster is not even near the galaxy so finding it is fun. Last night was super transparency so am not sure if this one could be done on an average night. Of course larger scopes will make it a bit easier.

Mark Ost

=====
January 2009 - I'm not usually an active member of this site, but I definitely would like to share some of the wonders that I have seen last night. It's been a while. It's the first night that I actually went out and did some serious winter sky observing. The air was crisp and the sky was clear with a transparency of maybe 8/10. Seeing wasn't the best, typical during

these winter months. I have the non intelliscope version of the 8" dob since I prefer the sheer hunt for the DSO's. I blew off some of the dust that has settled on the tube assembly and carefully lugged out front on the driveway. The skies are roughly magnitude 5 at zenith on a good night. Here is brief description of each object I observed along with the EP. EP's used 40mm 2", supplied 25mm, 14mm, and 5.5mm.

1. M31, bright oval with a long swath of light with 25mm, companion galaxy seen with higher power.
2. M1 crab nebula, insignificant oval shaped cloud. best seen at lowest power.
3. M42 Orion nebula, bright, irregular patch of light. Greenish tone can be seen all across the 25mm EP. Trapezium easily split to it's companion stars under high magnification.
4. Sigma Orion's (multiple star system): components broke up into four distinct stars. I might have seen 5 stars.
5. Beta Monocerotis, Quadruple star system split easily with the 5.5mm EP. One of my best systems to split.
6. Castor multiple star system, A & B easily split, C at around magnitude 10 easily seen further away.
7. Clown Face Nebula. A bit of a challenge but once found, it appeared to be like an out of focus star. Higher power barely shows the central star and a more apparent halo.
8. Saturn: in the boiling horizon and horrible seeing conditions I can make out the edge-on rings and two of its moons. no detail.
9. M41 open cluster, beautiful loose grain of stars best observed a lowest power. Not as grand as the double cluster.

That's about it. I had a great time and I'm definitely going to start using this scope more often. I almost forgot of how much I'm able to see through this 8". Clear skies to all.

Derek of EC, NC

The Back Bay Amateur Astronomer's Observer

100 HOURS OF ASTRONOMY

The 100 Hours Of Astronomy Star Party at Mt. Trashmore in Virginia Beach Friday, April 3 2009 was an enormous hit. When I arrived at 5:30 pm a handful of amateur as-



tronomers already had their telescopes set up in anticipation of a clear night. Once I handed out some doughnuts to the eager astronomers it was time to set up my equipment.

With approaching dusk more telescopes appeared, as if from nowhere. By 8:30 pm Mt. Trashmore became mobbed with people, proving great public awareness of astronomy. Whether the recent bolide meteor incident covered in the local news front had anything to do with the interest is questionable, but whatever the reason the success of the event was overwhelming.

Early on, I shared views of the star Sirius. People were



amazed it was visible in broad daylight through a small telescope. Next on the agenda was the gibbous Moon. What could be more impressive than seeing the Moon through a telescope? Actually, there is, Saturn! I think

about twenty telescopes were pointed at it, and Saturn looked better than I've ever seen it before. Eager people lined up to look at it through the various telescopes. With such a line I never had chance to look at anything else the whole night. At times there were probably 100 people in



each telescope line. Those lines remained long until the end of the event at 11:00 pm.

The Virginia Beach Parks & Recreation officially counted 1200 attendees, but that figure only included those entering through the main gate. I'd estimate a crowd of at least 1400, probably more.



Thanks to the Virginia Beach Parks & Recreation, to all us amateur astronomers and especially to Virginia Beach City Public Schools Planetarium Charles Dibbs for organizing the event. I've never seen such a fantastic turnout. Personally, it was the best time I've ever had.

Kent Blackwell

The Back Bay Amateur Astronomer's Observer



APRIL 2009

BBAE EVENTS	SPECIAL OUTREACH	ASTRONOMICAL EVENTS
02 = BBAA Monthly Meeting @ TCC, Campus Virginia Beach, VA , 7:30 PM	01 = WORLDS CONNECT, 7:00 PM, @ Bay-side Library, VA. Beach, POC: George Reynolds - Presentation & outdoors telescopes.	02 = FIRST QUARTER
03 = GARDENSTARS @ Norfolk Botanical Gardens 7:00 PM - POC Matt McLaughlin	03 = 100 HRS. ASTRONOMY, Dusk, @ Mt. Trashmore, VA. Beach, POC: Dale Carey - Outdoor telescope display.	
	04 = ASTRONOMY DAY, 10:00 AM, @ Chesapeake Library, POC: Ted Forte - Outdoor telescope display.	09 = FULL MOON
	04 = YURI'S NIGHT, 7:00 PM, @ VA Air & Space Center - ADULT over 21 Outdoor telescope display, festivities. POC BIRD Taylor THIS ONE'S FOR THE GROWN UPS!	
17= SKYWATCH @ NWRP, Dusk	06 = SCIENCE FAIR, 6:00 PM, @ Mt. Arrowhead Elementary, VA. Beach, POC: Chuck Jagow - Outdoor telescope display.	17 = LAST QUARTER
	17 = STARS FOR SPCA, 1:00 PM, @ VA. Beach SPCA, POC: George Reynolds - Presentation & solar telescopes.	
25 = NIGHTWATCH @ Chippokes State Park, Dusk		24 = NEW MOON