



BACK BAY observer

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

EPHEMERALS april 2017

4/06, 7:30 pm
BBAA Monthly Meeting
TCC Campus, VA Beach
Building J, Rm JC-13

4/13, 8:30 pm
Girl Scouts "Spring Break" Bash
Camp Outback, Chesapeake

4/15, 10:00 AM
Saturday "Sun" Day
Elizabeth River Park

4/21 & 4/28
Cornwatch
Cornland Park

4/22, 7:30 PM
Skywatch
Northwest River Park



4/29
Nightwatch
Chippokes Plantation

Looking Up!

The updated BBAA Constitution and By-laws has been approved. Revising these documents was a long process that involved many people. Special thanks to all who helped with the process and to all the members who took the time to vote.

Last month we were fortunate to have Dr. Kunio Sayanagi from Hampton University discuss his involvement with NASA's Decadal Study. The talk was very interesting as evident from the rousing applause he received at the end of his talk.

The April 6 meeting will feature a talk by our current Vice President, Jim Tallman, on image processing. Some of Jim's recent work is featured in the Observer's Corner of this newsletter. I am thankful that he is willing to share his knowledge with all of us. I hope everyone can attend.

April brings a few interesting astronomical items including:

- Mercury will be at its highest altitude of the year in early April Look low in the West 30-45 minutes after sunset.
- Jupiter is at opposition on the 7th. Please submit your observational reports.
- Saturn makes a pretty pairing with the waning gibbous Moon on the 16th about an hour before sunrise.
- On the 18th, look low in the west to see Mars shining less than 5 deg away from the Pleiades. This interesting celestial encounter lasts for about 5 days.

Until next time, keep Looking up!

Chuck Jagow

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February 2, 2017 Meeting Summary

Old Business:

- Chuck opened the meeting and spoke of the club's new incorporation. We had a near miss incident at Botanical Gardens, and another time at a Solar Display while setting up, a small child came close to looking into an unprotected eyepiece. So now with incorporation, the most anyone bringing law suit against us can get is the balance of the club's treasury. So now, our name has changed from the old "Back Bay Amateur Astronomers" to "Back Bay Amateur Astronomers, Incorporated".

Changes to constitution and by-laws:

- Chuck also discussed the changes to the constitution and by-laws. All members were sent an email and link to the Constitution. Tonight's meeting is an opportunity for inputs from the membership.
- The original Constitution was 2 pages, and this new one is now 11 pages.
- Added an associate member (under 18) a non-voting member of the club. AL. paid dues are still \$5.
- Improved the wording of the "associate member" especially the family members.

Also covers student under this associate member clause.

- Officer terms: Maximum of 2 years for each office. Offset two of the officers to keep 2, and newly elect another two. President and Secretary are offset by one election cycle. Three consecutive terms are now possible. The officer duties have been revised.
- Section on Board of Directors & Board Meetings. No compensation for Board Members.
- By-Laws. Annual Dues changed to \$23. Have never been raised since 2002 when they were first started.
- Disbursements (anything over \$100 must be Board approved).

Observing Reports:

- Jim got the Dew Shield and Heater set up for his 10" scope. Lowes sells insulation that he uses to cover the resistors of the dew shield.
- Ben Loyola making progress on the Herschel Award around Polaris.
- Chuck showed his 6 x 30 Solar Binoculars (Blunt Solar Systems Industries). He passed them around the room to show them.

March 2, 2017 Meeting Summary

New Business:

- Leigh Anne Lagoe reported on the upcoming 41st annual Virginia Association of Astronomical Societies (VAAS) Conference.
 - The BBAA is hosting this year's VAAS Conference on October 21, 2017 on the campus of Tidewater Community College.
 - Speakers for the conference are being arranged. Ben Loyola and Dr. Zawodny from NASA have agreed and Kent Blackwell is a maybe.
- Bird Taylor spoke about the Hampton Roads Maker Faire to be held at the Hampton Coliseum on May 6, 2017. From their website: "Maker Faire is a gathering of fascinating, curious people who enjoy learning and sharing what they can do. From engineers to artists to scientists to crafters, Maker Faire is a venue for these 'makers' to show hobbies, experiments and projects." Maker Faire is a free event but does require a

ticket that can be obtained from the website: hamptonroads.makerfaire.com.

Guest Speaker:

- Dr. Kunio Sayanagi spoke on the "Decadal Survey" (10 year survey) for NASA projects. Kunio was directly involved in the proposal for sending a probe to the planet Uranus. The National Academy is an independent non-profit organization that studies science research. Four Branches: Planetary Science, Human Exploration, Astrophysics, and Helio-physics. Dr. Sayanagi spoke on several aspects of evaluation and investing in several of the panels that he is a member. A 600 page document is edited and becomes the final report. Mars gets about 50% of the planetary funding. By studying our outer planetary systems, we can extrapolate that information to exoplanet study in "hot Jupiters". Both Jupiter and Saturn radiate more heat than they receive from our Sun.

The Back Bay Amateur Astronomers 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 date of the monthly meeting in order to be in the next month's edition.

Please submit all items to:
bbaa.newsletter@gmail.com or BBAA Observer, P.O. Box 9877, Virginia Beach, VA

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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 April 6, 2017 meeting will be held at TCC in Virginia Beach, Building J, Rm JC-13 (or nearby room) at 7:30 PM. Directions are on our [Night Sky Network page](#).

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

Observer's Corner



Jim Tallman's beautiful image of planetary nebula NGC 40, also known as the Bow-Tie Nebula, located in the constellation Cepheus.

Details: 9- 60s/800ISO lights, 30 Darks, 40 Flats/Bias.

BOW TIES ARE COOL!

Well I got my bottom out of bed on March 5 at 2:30 AM to actually try to get some imaging time in. The skies were nice and clear, but the wind was strong, enough to prevent me from doing any objects that need a long exposure time.

I ended up working on my effort to image the planetary nebulae in the A.L. Program. These objects don't take long exposure-wise (60-90 sec at most). I got six more this morning for a total of 23. So 57 left to image. I had to toss out quite a few of the images due to the wind, but I got enough lights to be able to work up a good image of each.

All in all, a nice crisp cold morning. Love it!

- Jim Tallman

Solar Eclipse Provides Coronal Glimpse

By Marcus Woo



On August 21, 2017, North Americans will enjoy a rare treat: The first total solar eclipse visible from the continent since 1979. The sky will darken and the temperature will drop, in one of the most dramatic cosmic events on Earth. It could be a once-in-a-lifetime show indeed. But it will also be an opportunity to do some science.

Only during an eclipse, when the moon blocks the light from the sun's surface, does the sun's corona fully reveal itself. The corona is the hot and wispy atmosphere of the sun, extending far beyond the solar disk. But it's relatively dim, merely as bright as the full moon at night. The glaring sun, about a million times brighter, renders the corona invisible.

"The beauty of eclipse observations is that they are, at present, the only opportunity where one can observe the corona [in visible light] starting from the solar surface out to several solar radii," says Shadia Habbal, an astronomer at the University of Hawaii. To study the corona, she's traveled the world having experienced 14 total eclipses (she missed only five due to weather). This summer, she and her team will set up identical imaging systems and spectrometers at five locations along the path of totality, collecting data that's normally impossible to get.

Ground-based coronagraphs, instruments designed to study the corona by blocking the sun, can't view the full extent of the corona. Solar space-based telescopes don't have the spectrographs needed to measure how the temperatures vary throughout the corona. These temperature variations show how the sun's chemical composition is distributed—crucial information for solving one of long-standing mysteries about the corona: how it gets so hot.

While the sun's surface is ~9980 Farenheit (~5800 Kelvin), the corona can reach several millions of degrees Farenheit. Researchers have proposed many explanations involving magneto-acoustic waves and the dissipation

of magnetic fields, but none can account for the wide-ranging temperature distribution in the corona, Habbal says.

You too can contribute to science through one of several citizen science projects. For example, you can also help study the corona through the Citizen CATE experiment; help produce a high definition, time-expanded video of the eclipse; use your ham radio to probe how an eclipse affects the propagation of radio waves in the ionosphere; or even observe how wildlife responds to such a unique event.



Illustration showing the United States during the total solar eclipse of August 21, 2017, with the umbra (black oval), penumbra (concentric shaded ovals), and path of totality (red) through or very near several major cities.

Credit: Goddard Science Visualization Studio, NASA.

Otherwise, Habbal still encourages everyone to experience the eclipse. Never look directly at the sun, of course (find more safety guidelines here: <https://eclipse2017.nasa.gov/safety>). But during the approximately 2.5 minutes of totality, you may remove your safety glasses and watch the eclipse directly—only then can you see the glorious corona. So enjoy the show. The next one visible from North America won't be until 2024.

For more information about the upcoming eclipse, please see:

<https://eclipse2017.nasa.gov/citizen-science>

<https://eclipse2017.nasa.gov/safety>

MEMBER REPORTS

Awake O Sleeper

Solar observers were excited to see a very large sunspot group on the Sun during late March and early April. Excited and surprised, as we are approaching the minimum of the current solar cycle, a cycle that has been described as [the weakest in 100 years!](#)

Due to the recent “boringness” of the sun, I haven’t had my white light solar filter out in weeks. After reading a recent post by Mark Ost on the club Yahoo page, I quickly set up on my deck and enjoyed the view. Even the guy from my lawn care company, who happened to be treating my lawn that day, was impressed!

- Paul Tartabini



*Image by Chuck Jagow.
April 2, 2017, 1/32 sec, ASA 100, ES127
Losmandy G2, Canon 60 Da*

Double Star Fun

A break in the clouds last night let me get in a couple of interesting doubles. These are good objects when the moon is brightening and sharpen observing skills.

One of my favorites is Omicron 2 Eridanus. This star provides an good test of imagination and observing resolution. Omicron 2, also known as Keid, is one of the few multiple star systems that contains one of the very few white dwarfs seen; easily the most accessible in amateur telescopes. This star certainly has end of life issues. Keid is easily visible with the naked eye but one of its two companions is the real show. The B star, the white dwarf, is incredibly dense, a cubic centimeter would weigh in at around 4000 lbs. The challenge

star is the third component, a red dwarf star coming in at around 11th magnitude, orbiting the B component. Dim and red makes for difficult observing in smaller telescopes. Larger telescopes will have an easier time of it.

After that eye strain go to Theta Auriga for a study in magnitude differences. Easily found, it too is a naked eye star. At 2.6 the main star has a 7th magnitude companion close by. It may take a bit of magnification and fair seeing to bring out the dimmer component. This is a good test of how steady the atmosphere is on a given night!

- Mark Ost

Congratulations!

Congrats to Chuck Jagow for his article about DIY dew heaters in the latest *Astronomy Technology Today* magazine!

Never heard of it? This is an online publication covering the latest news and review of astronomy equipment (mostly). And they have been, and still are, offering a free 1-year subscription (12 issues) to astronomy club members. Just go to their website (shown to the left) and enter the word “club” in the discount code box of the subscription form.

- Roy Diffrient



<https://astronomytechnologytoday.com>

Deep Sky Observing Hints

An article by Alan Dyer (Excerpted from 2017 RASC Observer's Handbook, p. 85)

Alan Dyer is an author of astronomy books and magazine articles, and a photographer of the night sky. He is an associate editor of *SkyNews*, Canada's magazine of stargazing, and a contributing editor to *Sky & Telescope* magazine. He is now retired from many years of producing planetarium shows for the theatres in Winnipeg, Edmonton, and Calgary, Canada. The main belt asteroid #78434 is named for him.

In the 1960s and 1970s, few observers owned telescopes larger than 200 mm [8 inches] in aperture. Today, 250-mm to 600-mm [10- to 24-inch] Dobsonian-mounted reflectors are commonplace. Using computerized telescopes, observers can now find thousands of objects at the push of a button. As a result, deep-sky observing has soared in popularity.

However, owners of less-sophisticated, small-aperture instruments shouldn't think they are shut out of deep-sky viewing. In a dark sky, an 80-mm to 100-mm telescope will show all the Messier objects and reveal hundreds of brighter NGC (New General Catalog) objects. In fact, many large objects are best seen in fast (f/4 to f/6), small-aperture telescopes or in giant 70-mm and 80-mm binoculars. Contrary to popular belief, even slow f-ratio instruments (f/11 to f/16) are useful; their only disadvantage is the difficulty of achieving a low-power wide field. No matter what telescope you use, follow these techniques to get the most out of a night's deep-sky viewing:

- Always plan each night's observing: Prepare a list of a dozen or so objects for the night. Hunt them down on star charts or with computer programs first during the day to become familiar with their location.
- Seek out dark skies; a black sky improves contrast and makes up for lack of aperture.
- To preserve night vision, always use a dim red flashlight for reading charts.
- Avoid prolonged exposure to bright sunlight earlier in the day (such as a day at the beach); it will reduce your ability to dark adapt and make for tired eyes at night.



Don't be afraid to use high power to resolve detail in bright galaxies. This is especially true for the Triangulum Galaxy (M33), in which numerous star forming regions can be glimpsed with a moderately sized telescope using this and other techniques described in this article.

Image Credit : Chuck Jagow

- Use averted vision; looking to one side of an object places it on a more sensitive part of the retina.
- Another technique for picking out faint objects is to jiggle the telescope (and the image) slightly.
- Don't be afraid to use high power; it often brings out small, faint objects such as planetary nebulae and galaxies, and resolves detail in globulars, in small, rich open clusters, and in bright galaxies.
- Use a nebular filter on emission and planetary nebulae; even in a dark sky, filters can dramatically enhance the view of these kinds of objects, often making obvious an otherwise elusive nebula.

[*Continued on page 7*](#)

- Be comfortable; sit down while at the eyepiece and be sure to dress warmly.
- Collimate and clean your optics; a poorly maintained telescope will produce distorted star images, reduce image contrast, and make it more difficult to see faint stars and other threshold objects.
- Don't expect to use analog setting circles; in a portable telescope "dial-type" circles will rarely be accurate.
- Digital setting circles and Go To telescopes can find objects precisely. While they are wonderful observing aids, they can overwhelm observers with thousands of targets, often supplying scant information about each one. When making a list for a night's viewing, books such as the three-volume Burnham's Celestial Handbook and the two-volume Night Sky Observer's Guide by Kepple and Sanner are still the best guides.
- Don't be in a rush to check off targets; take time to examine each object, and take notes or make drawings. Both will help train your eye to see subtle detail; you'll learn to see the most through your telescope.
- Consider keeping a logbook or journal of your nightly tours of the sky; including eyepiece impressions and drawings provides a record of your improving observing skills that is fun to look back upon in future years. [NOTE: the author recommends the section THE OBSERVING LOGBOOK on pages 86-87 of the RASC Handbook for suggestions on organizing a journal].

An Outreach Adventure

Friday night March 31, 2017 was Malibu Elementary School's Science Night. I had checked a weather app before leaving, which informed me of a 60% chance of showers... (HA!) I set up a table inside with our Exploring the Solar System toolkit from the NSN. For the first forty minutes of the event, I discussed the size & distance scale of the solar system by using our scale model and doing the "pocket solar system" activity on register tape. I had some help from a youth volunteer, Destanee. She took the younger kids aside to compare the Sun to the Earth. By 6:20, there were tornado warnings and we were watching the radar closely to see if we'd all have to take cover in the hall! Fortunately we did not.

By 6:40 flash flood warnings and the school hallway began to flood! The event was cut short and families were sent home before

the worst of the rain came through later. It was certainly an exciting night, even though there was only 40 minutes worth of outreach. Moral of the story: Forecasts can be wrong... so. very. wrong .

- Leigh Anne Lagoe



Leigh Anne Lagoe helps a student from Malibu Elementary school create a "Pocket Solar System."



April 2017

BBAA Events	Special Outreach	Astronomical Events
4/06 BBAA Monthly Meeting		4/03 First Quarter Moon
4/15 "Sun" Day @ Elizabeth River Park, Chesapeake, VA		4/07 Jupiter Opposition
4/21 & 4/28 Cornwatch @ Cornland Park	4/13 "Spring Break" Backyard Bash at Camp Outback	4/11 Full Moon
4/22 Skywatch @ Northwest River Park		4/19 Last Quarter Moon
4/29 Nightwatch @ Chippokes Plantation		4/26 New Moon

Sneak Peek into May

Wed 5/03/2017 Garden Stars at Norfolk Botanical Gardens, 8:30 pm

Thu 5/04/2017 Monthly Meeting, TCC, 7:30 pm

Sat 5/13/2017 "Sun" Day at Elizabeth River Park, 10:00 am

Sat 5/18-20/2017 East Coast Star Party, Hampton Lodge, Coinjock, NC

Fri 5/19/2017 & 5/26/2016 Observing session at Cornland Park

Sat 5/27/2017 Nightwatch at Chippokes Plantation