



BACK BAY observer

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

EPHEMERALS may 2017

5/03, 8:30 pm
Garden Stars
Norfolk Botanical Garden

5/04, 7:30 pm
BBAA Monthly Meeting
TCC Campus, VA Beach
Building J, Rm JC-13

5/06, 6:00 PM
Star Gazing with JEB Little Creek Library
Joint Base Little Creek/Ft. Story

5/09, 6:00 PM
Boardwalk Astronomy
24th Street, Virginia Beach, VA

5/13, 10:00 AM
Saturday "Sun" Day
Elizabeth River Park

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

5/27, 8:00 pm
Nightwatch
Chippokes Plantation



Looking Up!

We have had our share of crappy weather over the last few weeks (months, years?) and it is very tiring. I remember the first year I was with the BBAA, 2004. I remember only a few events the whole year being scrubbed due to weather. I was going to Chippokes every month, Skywatch was on every month and my first East Coast Star Party was in March of that year, a true Messier Marathon. I was using my Goto Meade Lx-200GPS 10" and I visited every Messier I could see above the Cedars. I remember Stan and I freezing nearly to death one night, but the skies were GREAT!

Speaking of the ECSP, Kent Blackwell's bi-annual East Coast Star Party starts in a couple of weeks and I can't wait! I verily hope that we get excellent weather patterns for the ECSP; however, some of my best memories from ECSP actually happened when we were shooing away the clouds through the sacrament of the boxed drink.

Last Saturday was National Astronomy Day at the Virginia Beach Central Library. We also commence our yearly Boardwalk Astronomy events at the Virginia Beach oceanfront on Tuesday May 9th. With Boardwalk Astronomy, Garden Stars, Sun Day on Saturday, Nightwatch and ECSP we have a very busy month!

May brings us some interesting items including:

- Regulus will be close to Luna as it skates through Leo.
- The Eta Aquariids meteor shower on the 5th and 6th.
- On the 7th it will be Jupiter's turn to dance with the Moon and Spica.

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- The 11th will bring two moons over the top of Jupiter so there will be a brief double transit of moons from 9:59 to 10:06PM EDT.
 - Again on the 18th the show with Jupiter's moons will be repeated, another double transit starting at 11:54 PM.
 - Near dawn on the 22nd, Venus will get in on the Moon's dance card as well, hanging about 3 or 4 degrees from the moon.
 - Again on the 26th the show with Jupiter's moons will be repeated, another double transit starting at 1:47 AM.
 - And you thought you were done with Jupiter? Not quite, ANOTHER double transit will grace us on the night of the 27th at 8:16 PM.
 - And for most of the month from dusk to dawn start searching for comet 41P/Tuttle-Giacobini-Kresak (say that three times after four glasses of Franzia) which should be visible in bins during ECSP.
- I hope we are rewarded with clear skies after all of this rain. More than likely, we will just get to fight more bugs, dew and humidity than we ought to. I hope everyone can come enjoy one of the many events planned and remember to keep looking up through the sucker holes!

Chuck Jagow

April 6, 2017 Meeting Summary

The meeting was called to order at 7:30 PM by President Chuck Jagow. Chuck opened the meeting and spoke about the raffle for an Orion 4.5" Telescope (complete with accessories) that will be given at the July Picnic at the Redwing Park Gazebo. All proceeds go to the Georgie June Scholarship Fund.

VAAS Report (Leigh Anne Lagoe):

The BBAA is hosting this year's [Virginia Association of Astronomical Societies](#) (VAAS) Conference on Oct. 21, 2017. Planetarium Shows, Guest Speakers: Dr. Joe Zawodny (NASA) will discuss Astrophotography or Astro Software that he developed, Dr. Gene Tracy (William & Mary) will discuss Polynesian Navigation with Astronomy of the time, T-Shirts for \$13 shown by Jeff Goldstein. Registration will be online shortly. Suggestions made to get a block of rooms at the oceanfront for out-of-town folks.

New Business:

- Chuck Jagow met with the Chesapeake Managers of the City Parks. They want to change several items (mostly to the good). they want us to sign an agreement of conformity about holding and sometimes cancelling events. Another club (not ours) complained about the park cancelling an event and complained and threatened to sue. Honorarium will be given by Chesapeake Parks for \$800 for scheduled events. If any of these are cancelled improperly, the park will deduct a portion of the \$800. Not all the details have been released. Bottom line:

Chuck will notify the park by Friday Noon should we cancel an event. Should there be a catastrophic event resulting in a cancellation, we will not be held accountable. More information to be announced at the next club meeting.

Observing Reports:

- George Reynolds re-introduced Tom Pearson, an old member of BBAA, who is now in Arizona and helps at [Lowell Observatory](#) with visitors. Tom told how it is fascinating to get visitors from around the world at the Observatory in Flagstaff, AZ, an international Dark Sky Site. One can easily see the Milky Way from Flagstaff.

Speaker: Jim Tallman (Imaging Software using PixInSight Software):

- [PixInSight](#) is specifically built for Astronomy, and also may be used for Terrestrial users, too. It does take quite a bit of power and requires a fast processor. It can be used with a free trial, then a \$200 registration fee is required.
- Jim actually went through the post-processing steps to show what looked initially like poor images evolving to beautiful, high-quality astronomical shots.
- Jim discussed dithering, hot spots, plate solve, stretching, noise levels, and other technical aspects of the software. His techniques were very informative, and understandable to all, even novice astrophotographers.

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:
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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 May 4, 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](#).

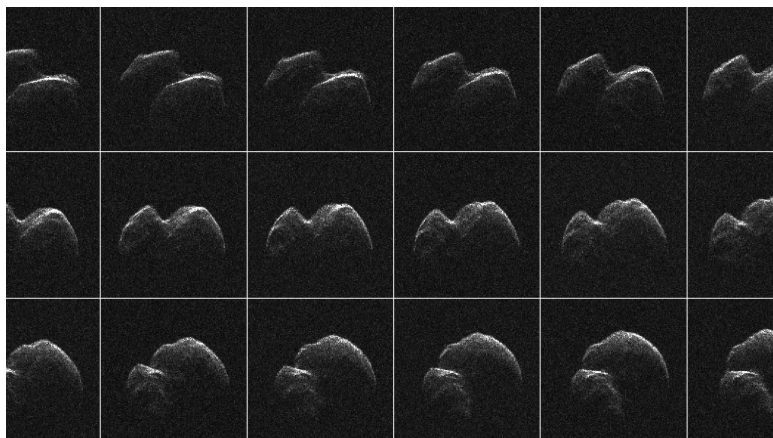
BBAA Internet Links

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



This composite of 30 images of asteroid 2014 JO25 was generated with radar data collected using NASA's Goldstone Solar System Radar in California's Mojave Desert.

Image credit: NASA/JPL-Caltech/GSSR.

JUST PASSING BY...

On April 19, 2017, [Asteroid 2014 JO25](#) flew past Earth at a distance of 1.1 million miles. The asteroid was discovered as part of NASA's Near-Earth Objects Observations Program and it was the closest pass by Earth in 400 years.

At sunset, I'd about given up hope due to overcast skies. Amazingly, around 11pm there was a nice clear patch in the vicinity of Bootes & Coma Berenices. Thanks to a good chart I printed using my SkyTools software, I was able to quickly locate the asteroid and tracked it for 25 minutes before a big cloud bank moved in. At magnitude 10.3, the asteroid was fairly easy to spot in my 8" scope and its apparent motion was easily detected.

- Paul Tartabini

What It's Like on a TRAPPIST-1 Planet

By Marcus Woo



With seven Earth-sized planets that could harbor liquid water on their rocky, solid surfaces, the TRAPPIST-1 planetary system might feel familiar. Yet the system, recently studied by NASA's Spitzer Space Telescope, is unmistakably alien: compact enough to fit inside Mercury's orbit, and surrounds an ultra-cool dwarf star—not much bigger than Jupiter and much cooler than the sun.

If you stood on one of these worlds, the sky overhead would look quite different from our own. Depending on which planet you're on, the star would appear several times bigger than the sun. You would feel its warmth, but because it shines stronger in the infrared, it would appear disproportionately dim.

"It would be a sort of an orangish-salmon color—basically close to the color of a low-wattage light bulb," says Robert Hurt, a visualization scientist for Caltech/IPAC, a NASA partner. Due to the lack of blue light from the star, the sky would be bathed in a pastel, orange hue.

But that's only if you're on the light side of the planet. Because the worlds are so close to their star, they're tidally locked so that the same side faces the star at all times, like how the Man on the Moon always watches Earth. If you're on the planet's dark side, you'd be enveloped in perpetual darkness—maybe a good thing if you're an avid stargazer.

If you're on some of the farther planets,

though, the dark side might be too cold to survive. But on some of the inner planets, the dark side may be the only comfortable place, as the light side might be inhospitably hot.

On any of the middle planets, the light side would offer a dramatic view of the inner planets as crescents, appearing even bigger than the moon on closest approach. The planets only take a few days to orbit TRAPPIST-1, so from most planets, you can enjoy eclipses multiple times a week (they'd be more like transits, though, since they wouldn't cover the whole star).

Looking away from the star on the dark side, you would see the outer-most planets in their full illuminated glory. They would be so close—only a few times the Earth-moon distance—that you could see continents, clouds, and other surface features.

The constellations in the background would appear as if someone had bumped into them, jostling the stars—a perspective skewed by the 40-light-years between TRAPPIST-1 and Earth. Orion's belt is no longer aligned. One of his shoulders is lowered.

And, with the help of binoculars, you might even spot the sun as an inconspicuous yellow star: far, faint, but familiar.

Want to teach kids about exoplanets? Go to the NASA Space Place and see our video called, "Searching for other planets like ours":

<https://spaceplace.nasa.gov/exoplanet-snap/>



This artist's concept allows us to imagine what it would be like to stand on the surface of the exoplanet TRAPPIST-1f, located in the TRAPPIST-1 system in the constellation Aquarius.

Credit: NASA/JPL-Caltech/T. Pyle (IPAC).

MEMBER REPORTS

A Memorable Astronomy Day

Saturday April 29, 2017, eleven club members participated in International Astronomy Day, setting up ten sets of telescopes at the Virginia Beach Central Library from 10:00 a.m. to 2:00 p.m. Chuck Jagow had two scopes, one solar-filtered and one with a sun funnel; Dale Cary had two, a solar Ha filtered scope and one with a white light filter; Jim Tallman had two, one with a white light filter, and one Ha. Mel Spruill, Ron Neale, Mark Gerlach, Chris Jarvis, Tommy Jarvis, and George Reynolds each set up a telescope (though Mel's rig looked like a scope cluster). Leigh Anne Lagoe ran the NASA/JPL/NSN table in the the

lobby, passing out handout materials to interested kids and adults. Kent Blackwell made an appearance for a little while and talked to some of the visitors. The sky was hazy, and there were only two small sunspots and one small prominence, but everyone enjoyed the views through the telescopes and the sun funnels. Ron had an educational table showing how a telescope works, and what to look for in the sky. It was another successful Astronomy Day at the library. !

- George Reynolds



The BBAA was out in force at the Virginia Beach Central Library for Astronomy Day on April 29, 2017. Inside the library (left) they were display kits, posters and handouts and outside (right) members had numerous telescopes set up to view the sun. Images by Leigh Anne Lagoe.

Putting Things in Perspective

Last night I was observing a galaxy with the romantic name of [NGC 5866](#), distance 50 million light years away. Not impressed? Well that is because we have no familiarity with large numbers. Lets put in term we can grasp: We all know what a second is, right? One one thousand two...

Ok. So we are going to relate seconds to miles via a bit of a long route. Bear with me. Lets start with numbers. One million seconds equals 11.7 days. So to get an idea of a million, think of every second for the past 11 or so days. That's a million. A billion is how many seconds? 31 years or back to 1986. That's a lot of seconds; a whole lot more. A trillion seconds gets us back to 29,671 BC. Every

second from that date to today is a trillion. Now if each of those seconds was a mile, multiply that number of miles (seconds) by 6 for ONE light year (6 trillion miles). The galaxy seen without too much trouble was 50 Million light years out. SO multiply that last huge number of miles by 50 million.....need a calculator? Now think; when the light started out, the dinosaurs had been dead for a short 15 million years, no humans around. Those photons traveled all that distance and time and we are here! Somehow, against all odds, it gets into the telescope, hits the retina of your eye, gets converted to an electrical impulse (photon is finally dead and at rest RIP). Amazing what?!

- Mark Ost

Getting Ready for the Messier Marathon

By George Reynolds

It's time to get ready for the annual Messier Marathon! What's that you say? That the Messier Marathon "window" is closed for this year? Then I say it is time to get ready for next year's Messier Marathon.

The optimal time of year for a Messier Marathon is the last couple weeks of March. That is when it is potentially possible to see all 110 (109 for purists) Messier objects in one night of observing. But that means that now is the time to sharpen your skills to be able to attempt a Messier Marathon in 2018.

You may ask, "What is a Messier Marathon, and why should I do it?" "Messier Marathon" is a term describing an attempt to find as many Messier objects as possible in one night. The objects are not evenly distributed across the celestial sphere, so depending on the season of the year and the location of the observer, there will be a varying number of them visible in the night sky. The Messier Marathon idea occurred in the 1970s independently among several North American and perhaps one Spanish amateur astronomers and groups.

Many amateur astronomers – and especially many professionals – never see all

(Part I)

the Messier objects in their lifetimes. Attempting to find them all in one night can improve one's techniques and ability to search for and locate celestial objects. There is the benefit of seeing, in one night, major components of our galaxy: open and globular star clusters, various nebulae and multiple stars, and other galaxies beyond our own. There is also the satisfaction of finding them, and perhaps of working with others in a mutual quest for a common goal.

The distribution of the Messier objects varies greatly across the night sky. Some areas are heavily crowded, like the Virgo Cluster and Coma Berenices, and Sagittarius near the center of the Milky Way Galaxy. Other parts of the sky are virtually empty of Messier objects, such as near the Great Square of Pegasus and between Ursa Major and Gemini. If you practice finding them now, you will have more chance for success at Messier Marathon time.

Timing is critical. In summertime there are not enough hours of darkness to see all 110 objects. The sun sets too late and rises too early, causing many early and late objects to be lost in the twilight or daylight. In winter,



French astronomer, Charles Messier (1730-1817), published the final version of his famous catalog of nebulae and star clusters in 1787. Originally compiled as a list of celestial objects that could be confused with comets, the catalog of "Messier Objects" has become a rite of passage of amateur astronomers all over the world.

some of the objects don't rise high enough above the horizon to be seen at our latitude, which is about 37 degrees North. Early spring, in mid- to late March, is the best time to try to perform a Messier Marathon.

Of course, there are other considerations besides time of the year: day of the week, Moon phase, weather, light pollution, local horizons, instrument(s) used, and latitude. Concerning latitude, observers farther south, say, in South Florida or the southern tip of Texas, around 25 degrees North Latitude, would

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Messier Marathon continued from [page 6](#)

have more nights when they could see all 110, than would their counterparts farther north.

For observers who have to go to work throughout the week, weekends are best for staying up for a long night of observing. When the Moon is between three days before New Moon and two days after, its brightness is not a hindering factor. At other times, with a few exceptions, the early-rising or late-setting Moon may wash out many of the dim Messier objects. An unobstructed horizon is needed after sunset for the early-setting Messier objects, and a clear eastern horizon in the early morning is an aid to see those rising just before dawn.

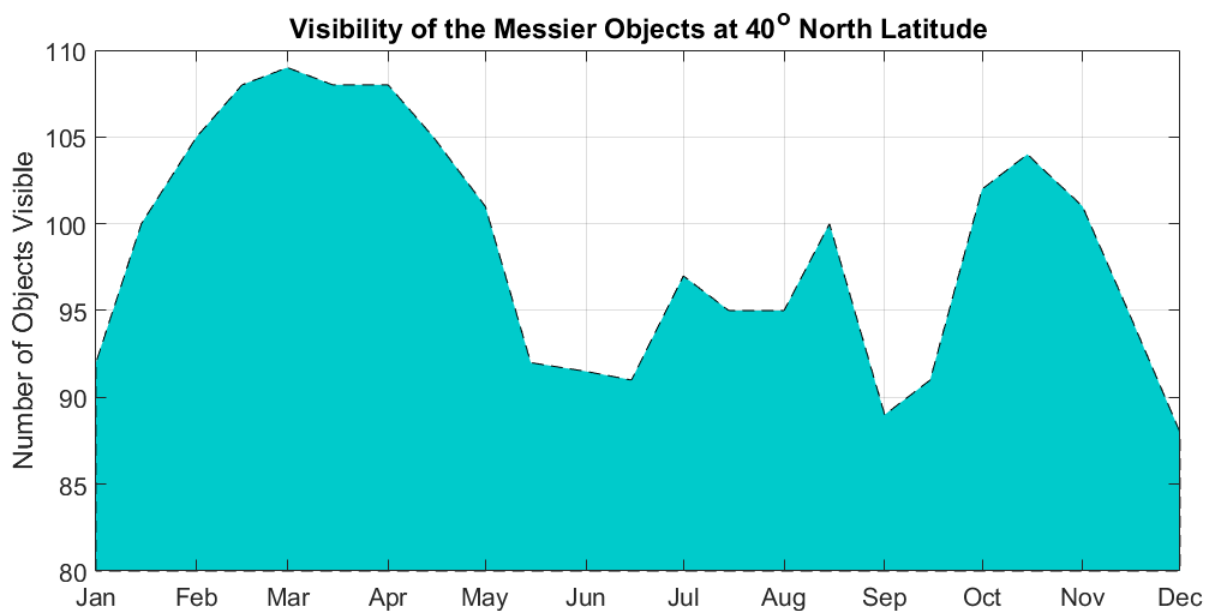
A dark location is much preferred, as far as possible from local light pollution and the light domes of large urban areas. Of course, weather is a factor that cannot be taken for granted. Clear skies are a must to be able to see all the “faint fuzzy” objects of the Messier catalog. Unfortunately, weather cannot be accurately predicted far enough in advance, so alternative weekends may be necessary in your plans, in hopes that one of them will have a clear night.

This discussion started out with the teaser, “time to get ready” for a Messier Marathon. As we have said, one way to get ready is to plan

your observing weekend and location, chosen to minimize light pollution and obstacles on the horizons. Another is to plan a date and time when the Moon’s brightness will not interfere, and to have alternative dates, in case of bad weather.

The last, but not the least important consideration is to prepare how to find the Messier objects. You will need to practice, practice, practice to hone your search skills and your familiarity with the Messier objects; how to locate, and then identify each one when you find it. You will need to practice finding them quickly, before they set in the west, or before sunrise obliterates them from the morning skies. You don’t want to become overwhelmed in those regions densely populated with targets.

But that will be the subject of another article. Start planning now to find a good time and location for next year’s Messier Marathon. Next time, in Part 2, I’ll give you tips on how to search, locate, and identify those elusive faint fuzzies. We’ll talk about the observing sequence, reference books and helps, the instrument(s) to use, and the experience you will gain by practicing mini-marathons throughout the year.



The ideal time to have a Messier Marathon is in March when all of the objects can be seen on a given night. However, even in the worst months, there are still over 85 Messier objects that are visible on a given night, making it possible to have a ‘mini-marathon’ any time of the year.



May 2017

BBAA Events	Special Outreach	Astronomical Events
5/04 BBAA Monthly Meeting	5/03 Garden Stars	5/02 First Quarter Moon
5/13 "Sun" Day @ Elizabeth River Park, Chesapeake, VA		5/10 Full Moon
5/18-20 East Coast Star Party Coinjock, NC	5/06 Star Gazing at the Joint Base Little Foot/Ft. Story	5/11,18,26,27 Dbl Shadow Transit on Jupiter
5/19 & 5/26 Cornwatch @ Cornland Park	5/09 Boardwalk Astronomy, 24th Street on the Oceanfront	5/18 Last Quarter Moon
5/27 Nightwatch @ Chippokes Plantation		5/25 New Moon

Sneak Peek into June

Thu 6/01/2017 Monthly Meeting, TCC, 7:30 pm

Tue 6/06/2017 Boardwalk Astronomy, 24th Street, Virginia Beach, 6:00 pm

Sat 6/10/2017 "Sun" Day at Elizabeth River Park, 10:00 am

Fri 6/16/2017 & 6/23/2017 Observing session at Cornland Park

Sat 6/17/2017 Skywatch at Northwest River Park, 8:00 pm

Sat 6/24/2017 Nightwatch at Chippokes Plantation