



BACK BAY observer

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

EPHEMERALS January 2018

01/19, 10:00 AM
Saturday "Sun" Day
Elizabeth River Park
Chesapeake, VA

01/20-21, 8:30 PM - 3:00 AM
Lunar Eclipse Watch Party
Chesapeake Planetarium

01/25, 10:00 PM
"Silent Sky" Post-show Viewing Party
Little Theater of Virginia Beach

01/26, 5:30 PM
Skywatch
Northwest River Park



Looking Up!

Happy New Year. I hope that everyone had a great holiday. First I would like to give a HUGE thank you to Paul Tartabini for the great newsletters he has put together over the years. He has been the BBAA Editor since March of 2012 by my calculations and deserves a big round of applause for the countless hours he has dedicated to the club.

Rightfully so Paul has asked that someone new take over as the editor for our club and I am happy to say Leigh Anne Lagoe has volunteered to assume the role. I am looking forward to the future editions of our club's newsletter. Due to time constraints for our members we are shooting for putting out a newsletter once a quarter.

Our newsletter editors always appreciate receiving content so please submit articles and items of interest to them on a regular basis to ensure a high quality newsletter for our members. Their email address is editor@backbayastro.org or you can snail mail the content to our club address: BBAA, Observer, P.O. Box 9877, Virginia Beach, VA.

Secondly I would like to thank our outgoing club officers for 2018, Jeff Goldstein (Secretary) and Bruce Powers (Treasurer) while welcoming our other newly elected officers for 2019. George Reynolds (Vice President), Chuck Jagow (Treasurer), and Kayla Robinson (Secretary).

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December 6, 2018 Meeting Summary

The meeting was called to order at 7:34 PM by President Chuck Jagow.

RRRT Report (Lawrence "Bird" Taylor & Ben Loyola)

- Bird advised that Ben Loyola sent him email concerning that the RRRT is way behind on getting funding and is looking for donations. Suggests that next meeting we can determine if club is able to give small donation (maybe \$500?) or provide software for telescope to help out. Chuck mentioned he would follow up with Ben Loyola and Mark Croom regarding a possible donation.
- Note for new members: the RRRT (Rapid Response Remote Telescope) is a million-dollar telescope on Fan Mountain (near UVa) open to use by BBAA club members. There is no fee to use the telescope, other than club dues. To sign up, just email Bird (see [page 3](#)) and he will send along your information to get you registered. Everything is handled online. To use the telescope, send an online request to RRRT and your request will be added to a queue. Images will be sent back to you via email and are owned by you (can be used in scientific papers, etc). Imaging can be for fun or for research purposes.

Old Business:

- The [Astronomical League Convention](#) (ALCON) will be at the Kennedy Space Center on July 25-29th, 2019.

New Business

- Start thinking about ideas for raffle to help fund Georgie June scholarship. Chuck will be donating his Canon 7D camera which will be modified later in December for better astrophotography pictures.
- The club is looking for a new Astronomical League Coordinator (ALCor).

Observing Reports:

- Shawn observed a comet last night easily from his backyard using binoculars.

- After the October East Coast Star Party in Coinjock, the campsite advised they are revamping the site (including construction of a main clubhouse, bathhouse, and all waterfront campgrounds) for another star party next year.

Program: (Moon Presentation by George Reynolds) :

- George shared an interesting presentation on many objects and features of Earth's only natural satellite, Luna (the moon). He showed QuickPhase Pro, a program he uses to track the phases of the moon throughout the year. He also handed out moon maps and went into great detail of the different features on the moon and where they are each located.
- George also brought in many books on the moon to share with those in attendance. Some of George's recommended books/tools for exploring the moon on your own:
 - *The Observer's Handbook* from the Royal Astronomical Society of Canada
 - *Objects in the Heavens* (shows what to look for on the moon every night of the month)
 - *Exploring the Moon with Binoculars and Small Telescopes*
 - *The Moon Book*
 - Moon Map with keys to items and objects on moon
 - Field maps of the moon (regular and reversed images of the moon for with/without telescope)
 - *Turn Left at Orion*
 - *Observing the Moon*
 - *Atlas of the Lunar Terminator*
 - *Atlas of the Moon* by Antonín Růkl
- The meeting adjourned at 9:10 PM.

Summary based on Minutes taken by Jeff Goldstein

Looking Up continued from [page 1](#)

The club had a great year in 2018 despite the numerous event cancellations for weather, and I look forward to the new year. I am open to suggestions on how to keep our club members engaged so please feel free to let me know of any ideas you have. Our first major club event is the

Lunar Eclipse this year is on the January 20th at the Chesapeake Planetarium. If you haven't tested the waters with outreach yet I encourage you to come join us there. I'll finish this up for now so I have something to say for the next newsletter. Keep looking up

Shawn Loescher

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 **Feb. 7, 2018** 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
<https://groups.yahoo.com/neo/groups/backbayastro>

BBAA Observer Newsletter
www.backbayastro.org/documents.php

Observer's Corner



Jim Tallman's beautiful image of the Ring Nebula was taken on April 14, 2018 from Norfolk, VA. (details: 5 inch refractor, stack of 25 45-second exposures).

DAWN PATROL

"Yesterday afternoon I set up the G11 and the Takahashi to test out my new CCD camera and then got back up at 2AM to do some imaging. I recently purchased an open box ZWO ASI174MC CCD camera with cooling. The camera was at 61F when I turned on the cooler and it quickly got down to 26F and stayed there. I used Astrophotography Tool (APT) to set up my imaging session. I like the auto focusing feature it has built in and its plate solving capabilities that get the target object centered automatically. Once I figured everything out, I started with something easy, M57." - Jim Tallman

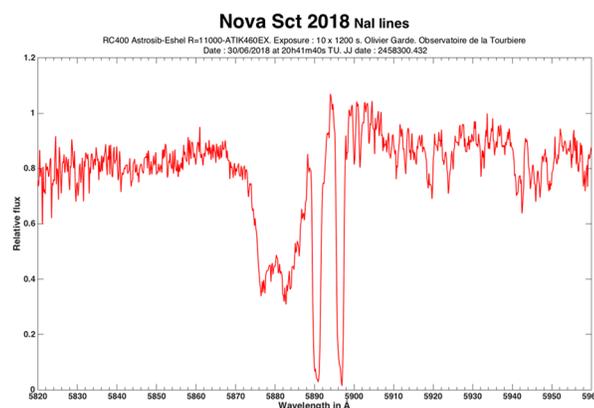
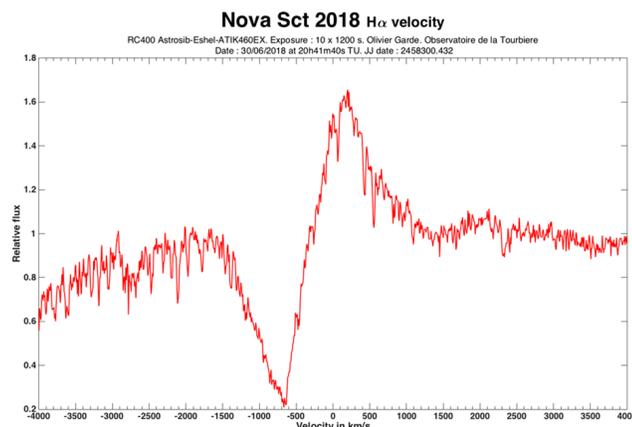
Variable Star Observing: Nova Scutum 2018

By Rich Roberts

In an era of all sky surveys, many amateur astronomers may question what opportunities exist for them to contribute to science. The truth is, “all sky” surveys don’t really cover the entire sky. Although fairly comprehensive, they tend to avoid the galactic plane and circumpolar stars. Also, depending on the survey, they may be surveying in bands other than V. This leaves openings for amateurs to make discoveries and make valuable contributions to the field. Amateur comet hunters have made many new discoveries by exploiting these gaps. Also, since classic nova are most likely to occur in the galactic plane, most novae (approximately 75%) are discovered by amateur astronomers. Nova Scutum 2018 (N SCT 2018) is a case in point.

On June 29, 2018, amateur astronomer Yukio Sakurai of Japan noted a 10.3 mag V transient at RA 18h29m22.90 and DEC -14° 30'46.0" in Scutum using his 180mm f/2.8 refractor and Nikon D7100 camera. The transient wasn't present on frames he took on 6/23 with a limiting magnitude of 12.1. He reported the transient and the Central Bureau of Astronomical Telegrams alerted the community for follow-up. The transient was quickly confirmed as a classic nova by two amateur astronomers (one in Germany, and one in Italy). Olivier Garde of France took the following measurements to determine N SCT 2018 is a galactic classical Fe II-type nova. "The overall appearance of the spectrum is of strong, overlapping absorption features with few prominent emission lines (aside from H α) and high interstellar extinction; the spectrum is typical of a classical nova in the optically thick (Fe-curtain) stage."

The American Association of Variable Star Observers ([AAVSO](http://www.aavso.org)) message boards alerted members to immediately start collecting data in all bands on 6/30. As of noon on 7/7, data provided by amateurs to the AAVSO included

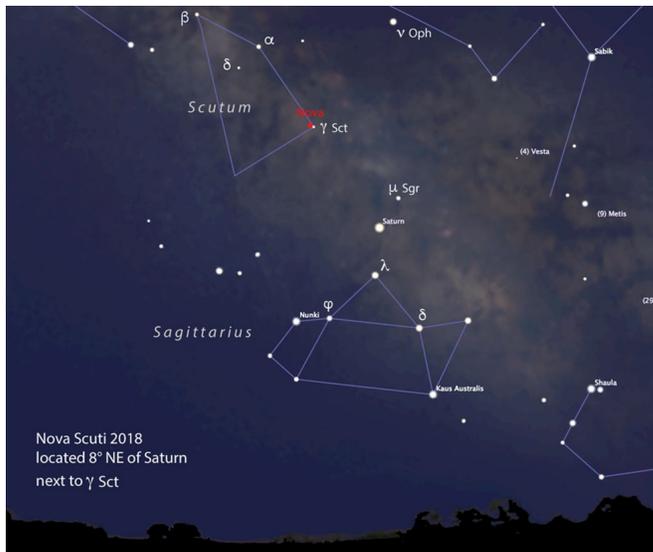


The above measurements were taken by French amateur astronomer, Olivier Garde, and were used to identify Nova Scutum 2018 as a classical FE II-type nova.

37 visual observations, 190 in Johnson B, 569 in Johnson V, 189 in Cousins R, 33 in Cousins I, 79 in unfiltered V, and 7 in Tri-color green. The Nova was about 10.5 mag in V by 6/30. It hung around 11.0 from 7/1 to 7/5 and is starting to dip below 11 on 7/7. AAVSO members will continue to monitor the nova as it slowly fades back to its original states over the next several months, years, or possibly decades. Prior to this outburst, this star system was recorded by Pan-STARRS1. Pan-STARRS had the magnitude of the system at 20.3 in Sloan i, which is the near infrared at 7625 Angstroms. This indicates the visual magnitude of the star system was even dimmer than 20 magnitude.

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I measured the visual magnitude of the Nova at 11.0 at 22:57 (local time) on 7/3 with my 11" SCT at f/10 and a 40 mm EP. The nova was easy to find as it was only 4 arc seconds northeast from the 4.6 magnitude Gamma Scuti. This finder chart is from Sky & Telescope:

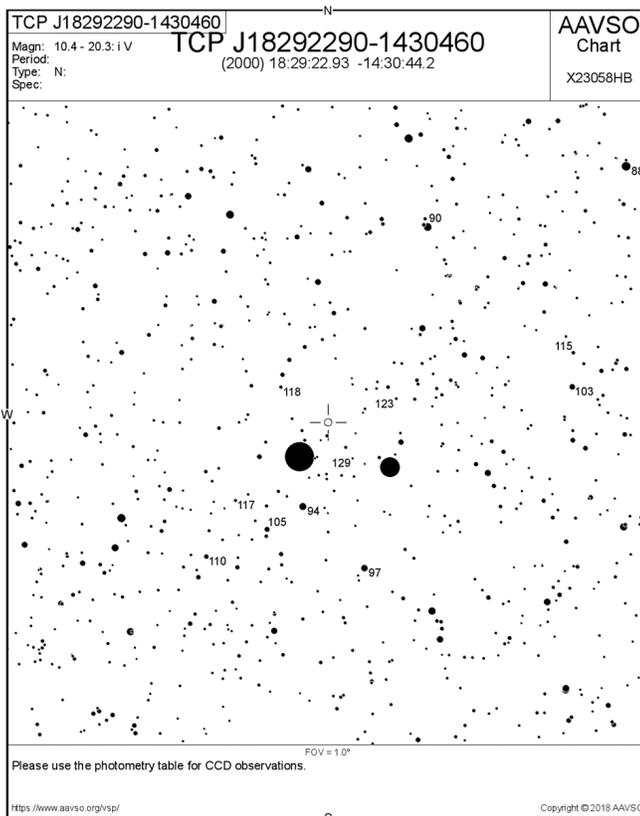


Clouds prevented me from making more observations and I was lucky to get the one observation I did make. On July 3rd, I started my observation run at 21:52 local time. I planned to observe 52 variables that night and the nova was 45th in my observing sequence. I started with variables with RA of 12 hours and planned to work my way East through the night. Since I was working with many southern stars, I had my sequence planned out so I would observe them as they were close to the meridian.

My southern horizon is my most light polluted and I have a limiting magnitude of about 12.2 when looking south. I figured to observe the nova around midnight when it was near the meridian and at max altitude of about 38 degrees. Clouds were expected to roll in about 2am. I started getting sparse, wispy clouds rolling in around 22:30. I was able to work around them but I decided to go ahead to observe the nova early to ensure I got it. It ended up being my 25th observation of the night.

After I slewed to it and identified it in my eyepiece, clouds started rolling into my field of view. I considered moving on and coming back to it later, but the clouds were moving fast. I stayed patient and waited for them to pass. There was some challenge to this estimate because the nova lies in the thick of the galactic plane and the star field is very rich, but finally I got a clear shot and was able to make a visual estimate using the AAVSO chart below (1 deg FOV, North Up, East Right).

I'm glad I was patient and resisted my initial urge to come back later because a thick layer of clouds rolled in and shut me down at 23:35. I completed 39 of my planned observations, so if I had stuck to my initial sequence I would not have completed a visual estimate on the nova, which was my main goal for the night.



The American Association of Variable Star Observers (AAVSO) chart for Nova Scutum 2018. The variable star chart shows a finder chart for the object as well as comparison stars. These are the stars with the magnitude listed next to them that can be used to estimate the brightness of the target.

A Sense of Wonder Through the Science of Astronomy

By Bruce Powers

As an amateur astronomer, I am fortunate to be able to experience a sense of awe at our very small place in the vast universe of which we are a part on a monthly basis. Every time I set up a telescope in the darkest spot I can find away from the city lights, I get to experience the vast scale of the universe itself.

I've been an amateur astronomer for 37 years, and I never tire of going through the effort of setting up a telescope to peer into the vast depths of space. Many people ask why I go through all this effort. I explain that finding distant galaxies is kind of like bird watching, in that it is satisfying to be able to identify the galaxy you've pinpointed in a telescope eyepiece based on star charts and books. Just like bird watching and identifying the type and species of birds in trees, going through the technical aspects of telescope pointing and star identification is satisfying on one level. But there's another deeper level of wonder I experience that goes beyond just the satisfaction of pointing a scope in the right direction. I don't often tell others of this wonder, as the bird watching analogy seems to be enough for why I stand in the middle of fields on cold, dark winter nights peering into telescope eyepieces.

No other science allows you to experience the wonders you can experience with astronomy with so little equipment, and all in your own backyard. You don't need a superconducting supercollider to do physics, or a chemistry set and risk creating explosive experiments. All you need is a simple telescope first perfected by Galileo and Newton hundreds of years ago.

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So you can experience this wonder I speak of in some way today, let me take you on a brief tour out into the universe:



Bruce Powers delivered this talk to the Coastal Virginia Unitarian Universalists Lay led service on April 29th, 2018.

On a night when the Moon phase is new, or at least not so bright, I search star charts for nebulas within our galaxy that are hundreds of light years away. There, I can see pockets of gas that are star forming regions. These will someday evolve into solar systems like our own, maybe where intelligent life will evolve. The stars in these solar systems will fuse their gaseous atoms into heavy chemical elements over their lifetimes. These stars will then explode at the end of their lives and send these elements hurtling outwards across the light years, which will one day coalesce into the chemical elements that make up everything on Earth, including us.

I move my telescope eye further out to the globular clusters that orbit our own Milky Way galaxy that are not hundreds, but tens of thousands of light years away. I find one particular globular cluster that we sent a message of greeting to any intelligent life there via a radio telescope years ago, but which will take tens of thousands of years to receive a reply, if at all. I wonder if the beehive of stars

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that makes up these clusters have intelligent beings on them that might be looking back at me?

I move my telescope eye further out into the universe. When I look at the Andromeda galaxy, 2.5 million light years away, I think about the Earth 2.5 million years ago when our Homo habilis ancestors first walked the Earth, because that is how long the light took to travel to my eye. This is the vast scale of time and distance I experience every time I set up a telescope. Four billion years into the future, our galaxy and the Andromeda galaxy will collide, but the Earth, if it is still around, will be largely unaffected. We know this because astronomers asked the big questions, and these were the big answers that came back once the data was reduced, the charts analyzed, and the scientific papers were written. To me, the science of astronomy allows us to think these really, really big thoughts.

From here we can move even further out in time and space to peer into the dim galaxies of the Virgo super cluster, 65 million light years away. The Milky Way and Andromeda galaxies are both hurtling towards the Virgo super cluster at 1.3 million miles per hour with respect to the Milky Way. When I'm not shivering on a cold winter night and instead swatting bugs on a dark summer night, I imagine this immense motion of our galaxy. I'm pointing my eye to light that left a galaxy in this super cluster when dinosaurs were becoming extinct 65 million years ago, after a giant asteroid hit the Earth at the end of the Cretaceous period of geologic time.

Ultimately, the main sense of wonder I experience through amateur astronomy is knowing that the atoms in my body were formed in the cores of distant stars. I believe we all have a

longing to know what the stars in the sky are all about, because in some sense we know this is where we came from. Carl Sagan said that we are a way for the universe to know itself. The atoms created in the fusion fires of distant suns have become sentient, and are looking back in wonder and recognition at the stars that created them. This in itself is a powerful and yes, spiritual realization for me.



The Andromeda Galaxy (Messier 31), our celestial next door neighbor, is a spiral galaxy located 2.5 million light years away.

Image by [Adam Evans](#), licensed under [CC BY 2.0](#).

I spend a fair amount of time doing amateur astronomy outreach with the BBAA. I am always willing to help those who are interested see some of these wonders for themselves through the lenses and mirrors of my amateur telescopes. It is my hope that they, and maybe you too, will be able to experience the sense of profound wonder I have for the universe that created us.

Total Lunar Eclipse Watch Party

Sunday, January 20, 2019 at 8:30 PM - 3:00 AM

Chesapeake Planetarium

310 Shea Dr., Chesapeake, VA 23222 ([Directions](#))



6000 people have indicated they are interested or going to this event on Facebook!!!

You know what that means? All hands on deck! Bring your telescope and help support this outreach event please. Even if you don't have a scope, you can help. The BBAA has educational kits for doing activities with the public. Please please please, plan to support this event or there are going to be some long lines at the telescopes. - Leigh Anne Lagoe



January 2019

BBAA Events	Special Outreach	Astronomical Events
01/03 BBAA Monthly Meeting		01/05 New Moon
01/05 Nightwatch	01/20-21 Lunar Eclipse Watch Party, Chesapeake Planetarium	01/14 First Quarter Moon
01/05 & 01/11 Cornwatch @ Cornland Park		01/20-21 Lunar Eclipse
01/19 Saturday "Sun" Day @ Elizabeth River Park	01/25 "Silent Sky" Viewing, Little Theater of Virginia Beach	01/21 Full Moon
01/26 Skywatch @ Northwest River Park		01/27 Last Quarter Moon

Sneak Peek into February

Sat 2/01/2019 & 2/08/2019 Corn Watch, Cornland Park, Chesapeake, VA

Sat 2/02/2019 Nightwatch at Chippokes Plantation State Park, 5:00 PM

Sat 2/02/2019 4-H Space Camp Outreach Event at Airfield 4-H Center, Wakefield, VA, 6:30 PM

Thu 2/07/2019 Monthly Meeting, Tidewater Community College, 7:30 pm

Tue 2/14/2019 Garden Stars at Norfolk Botanical Gardens, 7:00 PM

Sat 2/16/2019 Saturday "Sun" Day at Elizabeth River Park, Chesapeake, 10:00 AM