

The Focal Point

The Atlanta Astronomy Club
Established 1947
March 2019

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Editor: Tom Faber

Table of Contents

- Page 1...** March AAC General Meeting, Renewals
Page 2... February Meeting Report & Photos
Page 3... CEA March Meeting & February Meeting Report
Page 4... AAC Zombie Star Party, Mars Talk, AL Info, Book Review
Page 5... Sharpest view yet of Ultima Thule, Tiny Neptune Moon
Page 6... HST Reveals Dynamic Atmospheres of Uranus & Neptune
Page 7... AAC Online, Memberships, Contact Info
Page 8... Calendar, AAC List Serv Info, Focal Point Deadline

The March AAC Meeting

By Ken Poshedly, AAC Program Chair

Friday, March 15 at 8 PM - Fernbank Science Center

“Some Thoughts on the History and Future of Amateur Astronomy”

Why are there professional astronomers and what should the relationship between them and amateur astronomers actually be?

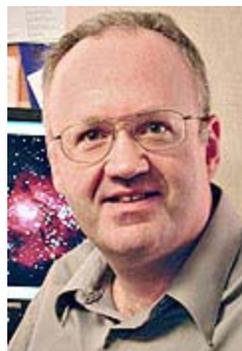
Curious? Then join us at 8 p.m., on March 15, at the Fernbank Science Center Resource Center (formerly the library room) when noted author and educator Michael Covington clarifies things quite a bit.

While he won't be able to give the whole history of amateur astronomy, he WILL provide a framework for understanding that relationship -- and it is a positive outlook.

Says Michael: “The answer, at any given time, depends on whether amateurs have access to objects not well-known to science. From about 1900 to 1957, amateurs almost had all of planetary science to themselves, as professionals concentrated on stars and galaxies. Then the ‘Space Age’ arrived, and all of a sudden the professionals turned to the Moon and planets, and space probes seemingly made us obsolete.

“From 1970 to 2000, affordable commercial telescopes made amateur astronomy easier than ever, but it wasn't clear whether science needed us because professional technology was surging ahead of anything we could keep up with, and many of us took the esthetic path (that is, deep-sky sightseeing).

“Fortunately we spawned a fascinating sub-hobby, astrophotography, which led to



March is Membership Renewal Month

The AAC has moved to a “one-date-for-all” membership renewal. ALL CLUB MEMBERS, with certain exceptions, should submit their \$30 dues for 2019 by the end of March. Please send your renewals to AAC Treasurer Sharon Carruthers, renew online using PayPal, or you can bring your renewal to the March Meeting. For more information see: http://atlantaastronomy.org/?page_id=22

Thank You for your support of the AAC!



Credit: Google Maps

major technical advances. Since 2000, amateur and professional technology have pulled back together in an astounding way -- to a remarkable extent we are now using the same equipment and software. Now that we can all take pictures as good as the Palomar Sky Survey, are we at a dead end? No; amateurs now do the best Earth-based planet imaging; amateurs have access to deep-sky objects that haven't been studied well (I'll show you “my” own nebula as an example); and we CAN contribute to science in an unprecedented way. We just need to work out the details.”

Michael received his B.A. (Linguistics), summa cum laude, from the University of Georgia (1977), his Master of Philosophy (Linguistics) from Cambridge University (1978) and his Ph.D. (Linguistics) from Yale University (1982). He is a Senior Member, Institute of Electrical and Electronics Engineers, and a member of the University of Georgia Linguistics Faculty and Engineering Faculty.

Continued on next page

His astronomy books are best-sellers, highly in demand and include “Astrophotography for the Amateur” (now in its third edition), “Digital SLR Astrophotography” (be sure to get the 2018 edition), “How to Use a Computerized Telescope” and “Celestial Objects for Modern Telescopes”. In addition, he co-authored “The Cambridge Eclipse Photography Guide” with Jay Pasachoff.

As always, the program is FREE and open to the public.

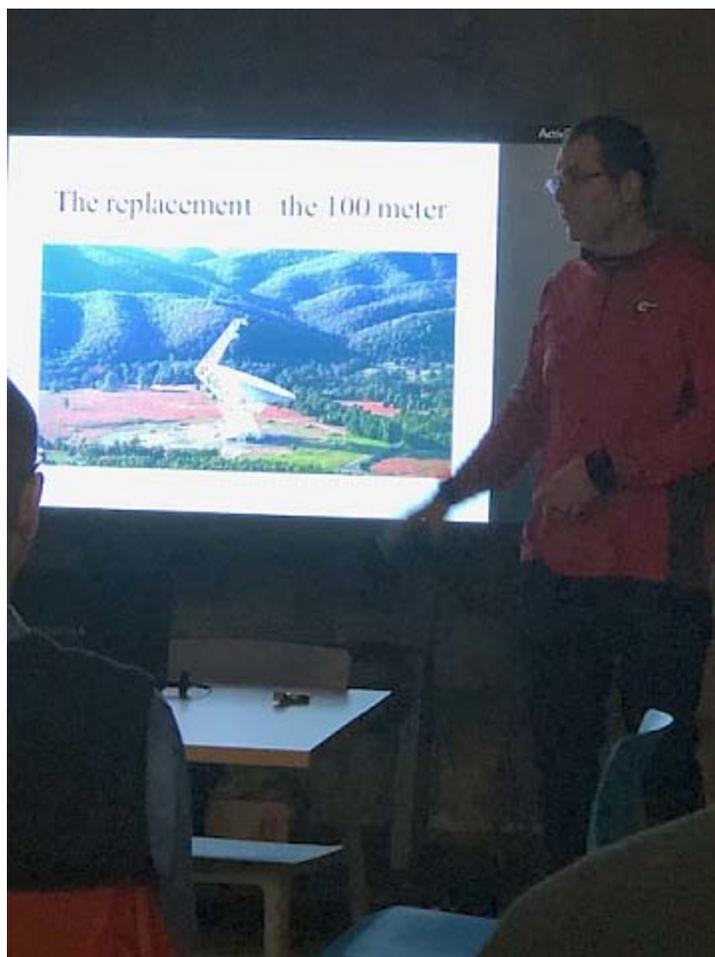
Finally, and weather-permitting, all will be invited upstairs to Ralph Buice Observatory to view through the 0.9 meter (36-inch) Cassegrain reflecting telescope inside the 10 meter (30 ft.) dome.

The Fernbank Science Center is located at 156 Heaton Park Dr. NE, Atlanta, GA 30303. (Phone: 678-874-7102).

March Meeting Report

Photos & Text by Ken Poshedly, AAC Program Chair

The February 15 meeting drew another sizable crowd of just under 30 members and guests who were totally impressed by Dr. Loris Magnani’s account (and great images) of the how’s and why’s of the slow demise of large, single-dish radio astronomy telescopes -- that is, the advancement of newer, better and more compact instrumentation that can literally outperform the big stuff.



Upcoming Charlie Elliott Meetings

Join us on Saturday March 9th, 2019 at 4:30 p.m. in the Campbell Aquatics Building at Charlie Elliott Wildlife Center for our quarterly potluck! If you have been to one of our potlucks, you're probably looking forward to the good food and good company these events have become known for. Potlucks are great when everyone chips in, and ours are no different. In addition to all of the good things like banana pudding, barbecue, and mac & cheese, we need help with set up and clean up as well. Please take a moment to sign up for something and help out.

<https://perfectpotluck.com/meals.php?t=PQZZ2415>

If you haven't found it already, check out our Facebook Page. You'll find a welcoming group of people sharing ideas and tips as well as organizing ad-hoc observing and imaging sessions on Jon Wood Astronomy Field.

Perspective

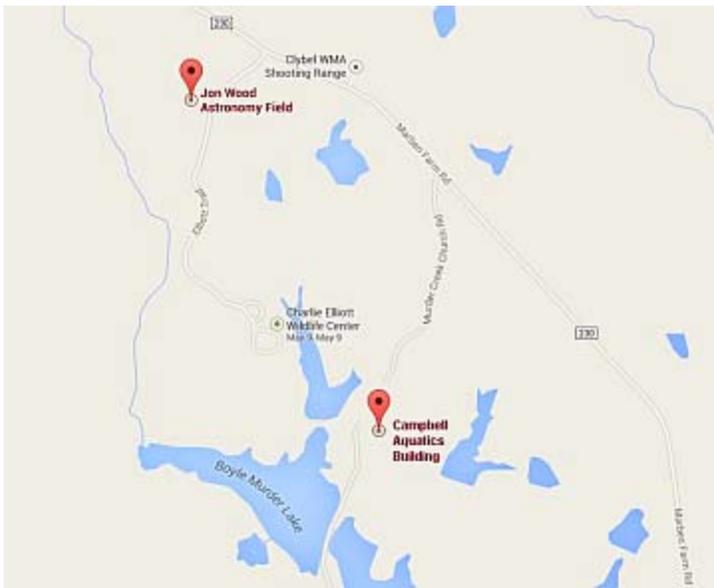
Observing Coordinator Steve Siedentop will be on hand to discuss what you can see and image in the night sky. His short presentation will cover observing from both a visual and a contemplative perspective. Steve started out as an observer, moved into astrophotography and enjoys doing both, finding observing particularly therapeutic. That's a good thing, because he needs all the therapy he can get! Steve will be joined by Astrophotography Coordinator Mark Woolridge who will cover the imaging challenges of the month and tips on how to image them as well as tips for beginners so you don't have to do everything the hard way!

Observing After the Meeting

All are invited to Jon Wood Astronomy Field immediately after the meeting (weather-permitting). As always, the event is free and open to the public.

Tech Talks

If you have an idea for a 15-30 minute discussion or presentation that you would like to see or would like to give, contact the Charlie Elliott Program Coordinator, Kevin Snedden.



Credit: Google Maps

The February Charlie Elliott Meeting

Submitted by Mike Mardis, Secretary, Charlie Elliott Chapter

Our February meeting in the Charlie Elliott Conference Room B was a success, however we were weathered out and did not have an observing session on the Jon Wood field after the meeting.

We had some great speakers and a lively Q&A session afterwards.

We had 27 attendees at the meeting including a local high school astronomy teacher and about five of his students. Some of the club members stayed after the meeting to work with the students on setting up mounts the students brought, and demonstrated how to use those mounts.

Meeting Minutes: 2/2/2019 at the Charlie Elliott Conference Room A

Pre-meeting start time: N/A

Presenter N/A

Topic N/A

Meeting:

Date/Time 2/2/2019 at 1600-2200

Facilitator Mike Shaw

Meeting Attendees 27

Agenda: Announcements, Briefings, Q&A / discussion.

Field Participants N/A

Outreach Reported by Dan Thoman - Pucket Mill 2/7, Morgan Co 2/12, 19 events held last year. Medals to members who supported 5+ outreach events

Awards Reported by David Whalen - N/A.

Briefing Speaker/Topic:

Mike Shaw Welcome and introduction to attendees.

Steve Seidentop "Perspectives" on Blood Moon, lunar eclipse. Planets viewable (Saturn, Jupiter, and Venus). Deep sky (Orion)

Mark Woolridge N/A

Menolis Georgoulis Space Weather briefing (solar magnetosphere, solar constant, space climate vs. weather). Solar Flares vs coronal mass ejections.

David Whalen N/A

Handouts:

Ken Poshedly Skymap

Other News:

Ken Poshedly ALPO Journal, Atlanta Astronomy Club Meeting upcoming meeting of the AAC at the Fernbank.

Theo Ramaker Solar images

Mike Mardis Provided analysis of SquareSpace vs GoDaddy for CEA web page hosting

Next Meeting Potluck dinner at Charlie Elliott Aquatic Center on 3/9/2019 at 4:30pm

Upcoming Charlie Elliott Meetings

Upcoming Charlie Elliott meetings will be held on: April 6, May 4, and June 1, 2019. Meetings start approximately 2 hours before sunset. Meeting rooms and start times vary, so please check back for updates or changes at: <http://ceastronomy.org/blog/home>

Public stargazing on Jon Wood Astronomy Field follows the meeting, weather permitting.

2019 Zombie Star Party

by Daniel Herron, AAC Observing Chair

This year's Zombie Party is scheduled for Thursday, April 4 thru Sunday, April 7 (3 nights) at the Deerlick Astronomy Village.

The Zombie party is a no-frills, open to the public, 3 night star party hosted by the Atlanta Astronomy Club. No speakers, workshops, or sessions – just observing. This event is open to all, beginners and experts alike, AAC members, and non-members (how else are we going to get you hooked!).

The event is \$15 per person per night due upon arrival, no refunds for bad weather once paid. See you there!

Weather:

General rule if the weather looks to be rainy during the night we will just cancel for that night and start the party the next day. We will make the go/nogo decision for Thursday by Wednesday night.

Note:

The Zombie party got its name from the way we all look the next morning after staying awake all night observing and has nothing to do with the undead that are occasionally rumored to walk the area!

Check <http://atlantaastronomy.org/> for updates.

Mars Exploration Talk

Editor's Note: This announcement was received from Marla Shavin with the City of Sandy Springs' performing arts center.

We have an event coming up that we think your club might be interested in. As part of our National Geographic Speakers Series we are hosting an event on Thursday, March 14, 2019 at 8 p.m., called Exploring Mars with NASA Mechanical Engineer Kobie Boykins. As supervisor of the mobility and remote sensing teams for the rover Curiosity, Boykins has monitored headline-making studies, including proof of the former presence of water on Mars indicating that the red planet could have supported life. Join Boykins, winner of a NASA Exceptional Service Medal, as he shares his boundless enthusiasm for unraveling the mysteries of outer space and recounts the latest exciting chapter of Mars exploration.

Here's a link to the page for more information:

<https://citysprings.com/events/exploring-mars-nasa-engineer-kobie-boykins>

The Astronomical League

As a member of the **Atlanta Astronomy Club** you are automatically also a member of the **Astronomical League**, a nation wide affiliation of astronomy clubs. Membership in the AL provides a number of benefits for you. They include:

- * You will receive *The Reflector*, the AL's quarterly newsletter.
- * You can use the Book Service, through which you can buy astronomy-related books at a 10% discount.
- * You can participate in the Astronomical League's Observing Clubs. The Observing Clubs offer encouragement and certificates of accomplishment for demonstrating observing skills with a variety of instruments and objects. These include the Messier Club, Binocular Messier Club, the Herschel 400 Club, the Deep Sky Binocular Club, and many others.

To learn more about the Astronomical League and its benefits for you, visit <http://www.astroleague.org>

A New Book for Amateur Astronomers

Editor's Note: This review was received from the book's author, Mike Hotka. The book looks like it may be useful for club members interested in pursuing the Astronomical League's observing programs.

Want to complete more Observing Programs?

Have you ever wanted to start and complete more of the Astronomical League's observing programs but just didn't know how? Mike Hotka's new book, *Exploring Amateur Astronomy - Goal Oriented Observing*, will not only help you start more observing programs, but will also share an observing methodology to help you get more out of your observing sessions. Mike is a Platinum Master Observer and has completed all but three of the currently existing observing programs. In his book, he shares tips and tricks he learned throughout the years of how to overcome some of these program's learning curves, so that you can start recording observations sooner. He wrote this book because of his love of astronomy and his desire to share his knowledge of observing celestial objects with others.

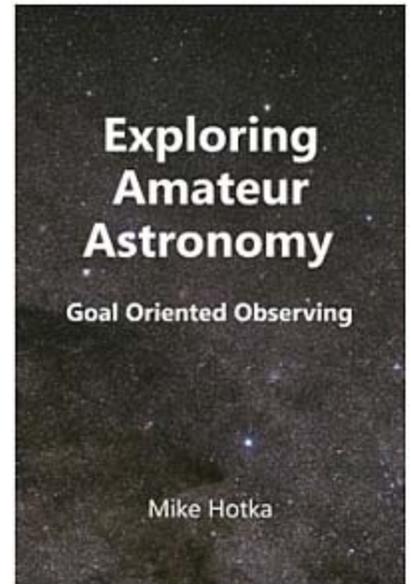
Mike's book explains the concept of setting SMART goals to ensure you observe on

a regular basis. The book goes on to explain a methodology that Mike has developed and refined over the years of how to plan an observing session, find the resources you will need in the field and the importance of keeping a good observing log of your observations.

The remainder of the book contains a chapter for each of the observing programs that Mike has completed. These chapters describe how Mike approached each observing program and he shares the techniques that were effective in completing the observations for each program. With this knowledge, you will be able to start making observations from the very beginning for even the most difficult of observing programs.

This book emphasizes learning and refining astronomical observing techniques. It is designed to aid the beginner as well as the experienced amateur astronomer to train their eye to see faint celestial objects. This book is dedicated to those that would like to start and complete more Astronomical League observing programs.

Exploring Amateur Astronomy - Goal Oriented Observing can be purchased in a paperback or eBook version from Amazon.com.



New Horizons Spacecraft Returns Its Sharpest Views of Ultima Thule

NASA/JHU-APL News Release - February 22, 2019

The mission team called it a “stretch goal” – just before closest approach, precisely point the cameras on NASA’s New Horizons spacecraft to snap the sharpest possible pics of the Kuiper Belt object nicknamed Ultima Thule, its New Year’s flyby target and the farthest object ever explored.

Now that New Horizons has sent those stored flyby images back to Earth, the team can enthusiastically confirm that its ambitious goal was met.

These new images of Ultima Thule – obtained by the telephoto Long-Range Reconnaissance Imager (LORRI) just 6½ minutes before New Horizons’ closest approach to the object (officially named 2014 MU69) at 12:33 a.m. EST on Jan. 1 – offer a resolution of about 110 feet (33 meters) per pixel. Their combination of high spatial resolution and a favorable viewing angle gives the team an unprecedented opportunity to investigate the surface, as well as the origin and evolution, of Ultima Thule – thought to be the most primitive object ever encountered by a spacecraft.

“Bullseye!” said New Horizons Principal Investigator Alan Stern, of the Southwest Research Institute (SwRI). “Getting these images required us to know precisely where both tiny Ultima and New Horizons were —



Highest Resolution Image of Ultima Thule

The most detailed images of Ultima Thule -- obtained just minutes before the spacecraft’s closest approach at 12:33 a.m. EST on Jan. 1 -- have a resolution of about 110 feet (33 meters) per pixel. Their combination of higher spatial resolution and a favorable viewing geometry offer an unprecedented opportunity to investigate the surface of Ultima Thule, believed to be the most primitive object ever encountered by a spacecraft.

This processed, composite picture combines nine individual images taken with the Long Range Reconnaissance Imager (LORRI), each with an exposure time of 0.025 seconds, just 6 ½ minutes before the spacecraft’s closest approach to Ultima Thule (officially named 2014 MU69). The image was taken at 5:26 UT (12:26 a.m. EST) on Jan. 1, 2019, when the spacecraft was 4,109 miles (6,628 kilometers) from Ultima Thule and 4.1 billion miles (6.6 billion kilometers) from Earth. The angle between the spacecraft, Ultima Thule and the Sun – known as the “phase angle” – was 33 degrees.

Credit: NASA/Johns Hopkins Applied Physics Laboratory/Southwest Research Institute, National Optical Astronomy Observatory

moment by moment – as they passed one another at over 32,000 miles per hour in the dim light of the Kuiper Belt, a billion miles beyond Pluto. This was a much tougher observation than anything we had attempted in our 2015 Pluto flyby.”

“These ‘stretch goal’ observations were risky, because there was a real chance we’d only get part or even none of Ultima in the camera’s narrow field of view,” he continued. “But the science, operations and navigation teams nailed it, and the result is a field day for our science team! Some of the details we now see on Ultima Thule’s surface are unlike any object ever explored before.”

The higher resolution brings out a many surface features that weren’t readily apparent in earlier images. Among them are several bright, enigmatic, roughly circular patches of terrain. In addition, many small, dark pits near the terminator (the boundary between the sunlit and dark sides of the body) are better resolved. “Whether these features are craters produced by impactors, sublimation pits, collapse pits, or something entirely different, is being debated in our science team,” said John Spencer, deputy project scientist from SwRI.

Project Scientist Hal Weaver, of the Johns Hopkins Applied Physics Laboratory, noted that the latest images have the highest spatial resolution of any New Horizons has taken – or may ever take – during its entire mission. Swooping within just 2,200 miles (3,500 kilometers), New Horizons flew approximately three times closer to Ultima than it zipped past its primary mission target, Pluto, in July 2015.

Ultima Thule is smaller than Pluto, but the Ultima flyby was done with the highest navigation precision ever achieved by any spacecraft. This unprecedented precision was achieved thanks to the ground-based occultation campaigns from 2017 and 2018 conducted in Argentina, Senegal, South Africa and Colombia, as well as the European Space Agency’s Gaia mission, which provided the locations of the stars that were used during the occultation campaigns.

Look for these and other LORRI images on the New Horizons LORRI website this week. Raw images from the camera are posted to the site each Friday.

Mission operations manager Alice Bowman, of APL, reports that the spacecraft continues to operate flawlessly. New Horizons is nearly 4.13 billion miles (6.64 billion kilometers) from Earth; at that distance, radio signals, traveling at light speed, reach the large antennas of NASA’s Deep Space Network six hours and nine minutes after New Horizons sends them.

Tiny Neptune Moon Spotted by Hubble May Have Broken from Larger Moon

NASA/STScI News Release - February 20, 2019

Astronomers call it “the moon that shouldn’t be there.”

After several years of analysis, a team of planetary scientists using NASA’s Hubble Space Telescope has at last come up with an explanation for a mysterious moon around Neptune that they discovered with Hubble in 2013.

The tiny moon, named Hippocamp, is unusually close to a much larger Neptunian moon called Proteus. Normally, a moon like Proteus should have gravitationally swept aside or swallowed the smaller moon while clearing out its orbital path.

So why does the tiny moon exist? Hippocamp is likely a chipped-off piece of the larger moon that resulted from a collision with a comet billions of years ago. The diminutive moon, only 20 miles (about 34 kilometers) across, is 1/1000th the mass of Proteus (which is 260 miles [about 418 kilometers] across).

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“The first thing we realized was that you wouldn't expect to find such a tiny moon right next to Neptune's biggest inner moon,” said Mark Showalter of the SETI Institute in Mountain View, California. “In the distant past, given the slow migration outward of the larger moon, Proteus was once where Hippocamp is now.”

This scenario is supported by Voyager 2 images from 1989 that show a large impact crater on Proteus, almost large enough to have shattered the moon. “In 1989, we thought the crater was the end of the story,” said Showalter. “With Hubble, now we know that a little piece of Proteus got left behind and we see it today as Hippocamp.” The orbits of the two moons are now 7,500 miles (about 12,070 kilometers) apart.

Neptune's satellite system has a violent and tortured history. Many billions of years ago, Neptune captured the large moon Triton from the Kuiper Belt, a large region of icy and rocky objects beyond the orbit of Neptune. Triton's gravity would have torn up Neptune's original satellite system. Triton settled into a circular orbit and the debris from shattered Neptunian moons re-coalesced into a second generation of natural satellites. However, comet bombardment continued to tear things up, leading to the birth of Hippocamp, which might be considered a third-generation satellite.

“Based on estimates of comet populations, we know that other moons in the outer solar system have been hit by comets, smashed apart, and re-accreted multiple times,” noted Jack Lissauer of NASA's Ames Research Center in California's Silicon Valley, a coauthor on the new research. “This pair of satellites provides a dramatic illustration that moons are sometimes broken apart by comets.”

Hippocamp is a half-horse half-fish from Greek mythology. The scientific name for the seahorse is Hippocampus, also the name of an important part of the human brain. The rules of the International Astronomical Union require that the moons of Neptune are named after Greek and Roman mythology of the undersea world.

The team of astronomers in this study consists of M. Showalter (SETI Institute, Mountain View, California), I. de Pater (University of California, Berkeley, California), J. Lissauer (NASA Ames Research Center, Silicon Valley, California), and R. French (SETI Institute, Mountain View, California).

The paper will appear in the February 21 issue of the science journal *Nature*.

The Hubble Space Telescope is a project of international cooperation between NASA and ESA (European Space Agency). NASA's Goddard Space Flight Center in Greenbelt, Maryland, manages the telescope. The Space Telescope Science Institute (STScI) in Baltimore, Maryland, conducts Hubble science operations. STScI is operated for NASA by the Association of Universities for Research in Astronomy in Washington, D.C.

This is an artist's concept of the tiny moon Hippocamp that was discovered by the Hubble Space Telescope in 2013. Only 20 miles across, it may actually be a broken-off fragment from a much larger neighboring moon, Proteus, seen as a crescent in the background. This is the first evidence for a moon being an offshoot from a comet collision with a much larger parent body. Credits: NASA, ESA, and J. Olmsted (STScI)



Hubble Reveals Dynamic Atmospheres of Uranus and Neptune

NASA/STScI News Release - February 7, 2019

During its routine yearly monitoring of the weather on our solar system's outer planets, NASA's Hubble Space Telescope has uncovered a new mysterious dark storm on Neptune and provided a fresh look at a long-lived storm circling around the north polar region on Uranus.

Like Earth, Uranus and Neptune have seasons, which likely drive some of the features in their atmospheres. But their seasons are much longer than on Earth, spanning decades rather than months.

The new Hubble view of Neptune shows the dark storm, seen at top center. Appearing during the planet's southern summer, the feature is the fourth and latest mysterious dark vortex captured by Hubble since 1993. Two other dark storms were discovered by the Voyager 2 spacecraft in 1989 as it flew by the remote planet. Since then, only Hubble has had the sensitivity in blue light to track these elusive features, which have appeared and faded quickly. A study led by University of California, Berkeley, undergraduate student Andrew Hsu estimated that the dark spots appear every four to six years at different latitudes and disappear after about two years.

Hubble uncovered the latest storm in September 2018 in Neptune's northern hemisphere. The feature is roughly 6,800 miles across.

To the right of the dark feature are bright white “companion clouds.” Hubble has observed similar clouds accompanying previous vortices. The bright clouds form when the flow of ambient air is perturbed and diverted upward over the dark vortex, causing gases to freeze into methane ice crystals. These clouds are similar to clouds that appear as pancake-shaped features when air is pushed over mountains on Earth (though Neptune has no solid surface). The long, thin cloud to the left of the dark spot is a transient feature that is not part of the storm system.

It's unclear how these storms form. But like Jupiter's Great Red Spot, the dark vortices swirl in an anti-cyclonic direction and seem to dredge up material from deeper levels in the ice giant's atmosphere.

The Hubble observations show that as early as 2016, increased cloud activity in the region preceded the vortex's appearance. The images indicate that the vortices probably develop deeper in Neptune's atmosphere, becoming visible only when the top of the storm reaches higher altitudes.

The snapshot of Uranus, like the image of Neptune, reveals a dominant feature: a vast bright cloud cap across the north pole.

Scientists believe this feature is a result of Uranus' unique rotation. Unlike every other planet in the solar system, Uranus is tipped over almost onto its side. Because of this extreme tilt, during the planet's summer the Sun shines almost directly onto the north pole and never sets. Uranus is now approaching the middle of its summer season, and the polar-cap region is becoming more prominent. This polar hood may have formed by seasonal changes in atmospheric flow.

Near the edge of the cloud cap is a large, compact methane-ice cloud, which is sometimes bright enough to be photographed by amateur astronomers. A narrow cloud band encircles the planet north of the equator. It is a mystery how bands like these are confined to such narrow widths, because Uranus and Neptune have very broad westward-blowing wind jets.

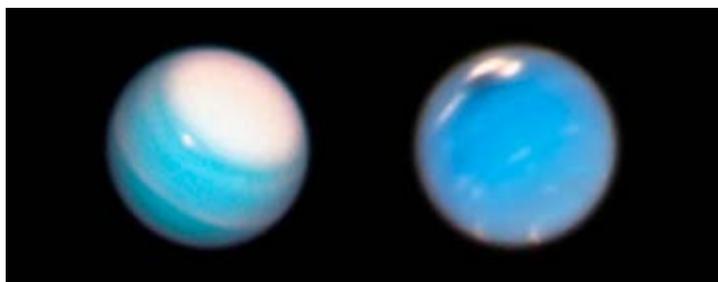
Both planets are classified as ice giant planets. They have no solid surface but rather mantles of hydrogen and helium surrounding a water-rich interior, itself perhaps wrapped around a rocky core. Atmospheric methane absorbs red light but allows blue-green light to be scattered back into space, giving each planet a cyan hue.

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The new Neptune and Uranus images are from the Outer Planet Atmospheres Legacy (OPAL) program, a long-term Hubble project, led by Amy Simon of NASA's Goddard Space Flight Center in Greenbelt, Maryland, that annually captures global maps of our solar system's outer planets when they are closest to Earth in their orbits. OPAL's key goals are to study long-term seasonal changes, as well as capture comparatively transitory events, such as the appearance of Neptune's dark spot. These dark storms may be so fleeting that in the past some of them may have appeared and faded during multi-year gaps in Hubble's observations of Neptune. The OPAL program ensures that astronomers won't miss another one.

These images are part of a scrapbook of Hubble snapshots of Neptune and Uranus that track the weather patterns over time on these distant, cold planets. Just as meteorologists cannot predict the weather on Earth by studying a few snapshots, astronomers cannot track atmospheric trends on solar system planets without regularly-repeated observations. Astronomers hope that Hubble's long-term monitoring of the outer planets will help them unravel the mysteries that still persist about these faraway worlds.

Analyzing the weather on these worlds also will help scientists better understand the diversity and similarities of the atmospheres of solar-system planets, including Earth.



During its routine yearly monitoring of the weather on our solar system's outer planets, NASA's Hubble Space Telescope has uncovered a new mysterious dark storm on Neptune (right) and provided a fresh look at a long-lived storm circling around the north polar region on Uranus (left).

Like Earth, Uranus and Neptune have seasons, which likely drive some of the features in their atmospheres. But their seasons are much longer than on Earth, spanning decades rather than months.

Credit: NASA, ESA, A. Simon (NASA Goddard Space Flight Center), and M.H. Wong and A. Hsu (University of California, Berkeley)

The **Atlanta Astronomy Club, Inc.**, one of the South's largest and oldest astronomical society, meets at **3:00 P.M.** on the 2nd Saturday of each month at the Fernbank Science Center in Decatur, or occasionally at other locations or times. Membership fees are **\$30** for a family or single person membership. College Students membership fee is **\$15**. These fees are for a one year membership.

Magazine subscriptions to *Sky & Telescope* or *Astronomy* can be purchased through the club for a reduced rate. The fees are **\$33** for Sky & Telescope and **\$34** for Astronomy. Renewal forms will be sent to you by the magazines. Send the renewal form along with your check to the Atlanta Astronomy Club treasurer.

The Club address: Atlanta Astronomy Club, Inc., P.O. Box 76155, Atlanta, GA 30358-1155. AAC Web Page: <http://www.AtlantaAstronomy.org>. Send suggestions, comments, or ideas about the website to webmaster@AtlantaAstronomy.org. Also send information on upcoming observing events, meetings, and other events to the webmaster.

Atlanta Astronomy Club Online

While this newsletter is the official information source for the Atlanta Astronomy Club, it is only up to date the day it is posted. So if you want more up to date information, go to our club's website. The website contains pictures, directions, membership applications, events, updates, and other information. <http://www.atlantaastronomy.org> You can also follow the AAC on Facebook by joining the AAC group, and on Twitter at <http://twitter.com/atlaastro>.

AAC Officers and Contacts

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Elliott Coordinator: Lacy Mitchell, Lacy.Mitchell@dnr.ga.gov

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PSSG Chairman: Peter Macumber pmacumber@nightsky.org

PSSG Co-Chair: Open

Sidewalk Astronomy: Open
sidewalkastronomy@AtlantaAstronomy.org

Light Tresspass: Ken Edwards, Contact info TBA

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AAC Webmaster: Daniel Herron
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Calendar by Tom Faber (Times EDT/EST unless noted)

AAC Events are listed in **BOLD**

- Mar 6th, Wednesday: New Moon.
- Mar 7th, Thursday: Neptune conjunction with Sun.
- Mar 9th, Saturday: **CEA Chapter Meeting.**
- Mar 10th, Sunday: Daylight Saving Time begins at 2:00AM.
- Mar 14th, Thursday: Moon First Quarter. Mercury at Inferior Conjunction.
- Mar 15th, Friday: **AAC Meeting 8PM at the Fernbank Science Center.**
- Mar 20th, Wednesday: Spring Equinox at 5:58PM EDT.
- Mar 21st, Thursday: Full Moon.
- Mar 28th, Thursday: Moon Last Quarter.
- Apr 4th-7th, Thursday-Sunday: **Zombie Star Party at DAV. Contact Daniel Herron for details**
- Apr 5th, Friday: New Moon.
- Apr 6th, Saturday: **CEA Chapter Meeting.**
- Apr 12th, Friday: Moon First Quarter.
- Apr 16th, Tuesday: Mercury near Venus morning.
- Apr 19th, Friday: **AAC Meeting 8PM at the Fernbank Science Center.** Full Moon.
- Apr 21st, Sunday: Lyrids meteor shower.
- Apr 22nd, Monday: Uranus conjunction with Sun.
- Apr 23th, Tuesday: Moon near Jupiter.
- Apr 25th, Thursday: Moon near Saturn.
- Apr 26th, Friday: Moon Last Quarter.
- May 4th, Saturday: New Moon. **CEA Chapter Meeting.**
- May 11th, Saturday: Moon First Quarter.
- May 17th, Friday: **AAC Meeting 8PM at the Fernbank Science Center.**
- May 18th, Saturday: Full Moon.

For more event listings and updates see the calendar at www.atlantaastronomy.org

Atlanta Astronomy Club Listserv

Subscribe to the Atlanta Astronomy Club Mailing List: The name of the list is: AstroAtlanta. The address for messages is: AstroAtlanta@yahoogroups.com . To add a subscription, send a message to: AstroAtlanta-subscribe@yahoogroups.com .

Focal Point Deadline and Submission Information

Please send articles, pictures, and drawings in electronic format on anything astronomy, space, or sky related to Tom Faber at focalpoint@atlantaastronomy.org. Please send images separate from articles, not embedded in them. Articles are preferred as plain text files with images separate but Word documents or PDFs are okay. **The deadline for April is Sunday, March 24. Submissions received after the deadline will go in the following issue.**



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The Focal Point