

The Focal Point

The Atlanta Astronomy Club
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Editor: Tom Faber

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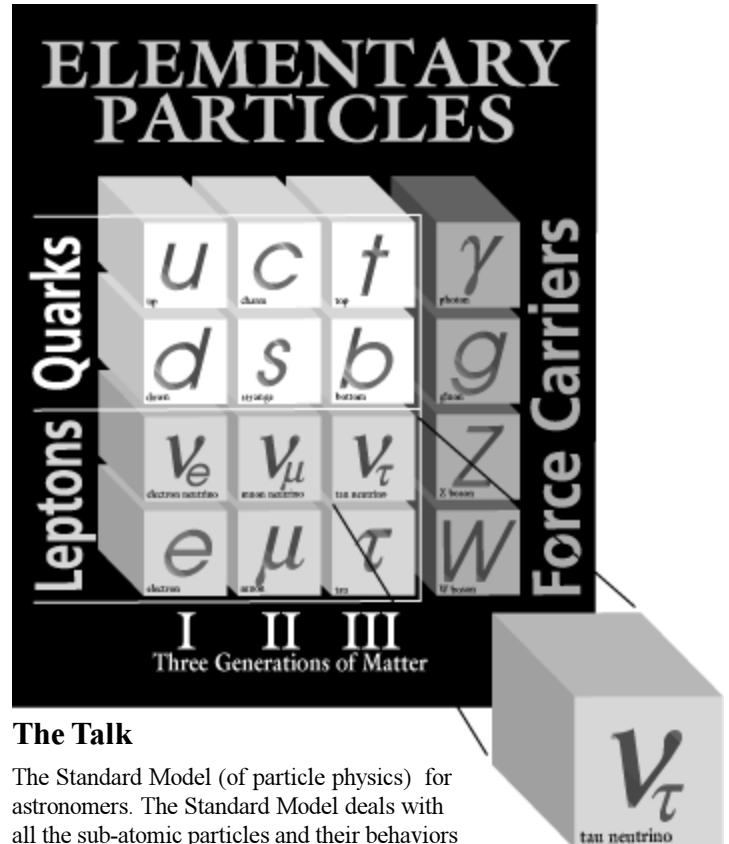
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August General Meeting

Please join us for the next meeting of the Atlanta Astronomy Club, to be held on Saturday, August 8th at **3PM at the Fernbank Science Center**. Since Fernbank closes at 5PM on Saturdays we will now begin our meetings at 3PM. A short beginner's program will be presented at 2PM. Our featured speaker will be Vince Teeter, a retired computer engineer. Vince will present a talk about the Standard Model of particle physics. After the talk and elections, upcoming club events and programs will be announced by the club officers. *(Next Column)*

The 2015 Peach State Star Gaze

Mark your calendars for the 2015 Peach State Star Gaze which is scheduled for Sunday October 11 through Sunday October 18 at the Deerlick Astronomy Village! Stay tuned to upcoming issues of the *Focal Point* and the AAC web sites for details on the talks, speakers, and other activities that will be held during the Star Gaze. And of course there will be lots of observing under some of the darkest skies in Georgia. The new moon occurs on Tuesday, October 13. Micki's Kitchen is also scheduled to return with meals, sandwiches, hot coffee and hot chocolate and other drinks, and her famous brownies! See you there!



The Talk

The Standard Model (of particle physics) for astronomers. The Standard Model deals with all the sub-atomic particles and their behaviors known to date. We will briefly cover all of the elementary particles but concentrate especially on the more stable ones, those which are generally of more interest to astronomers.

Speaker Bio

Vince Teeter is a retired computer engineer with a MS degree from Georgia Tech. He is neither a physicist nor an astronomer but an avid amateur of both fields. As a volunteer, Vince has served as a docent and an educator at the Pisgah Astronomy Research Institute, www.pari.edu, near Brevard NC. He is also a volunteer lab assistant at the Tellus Science Museum.

Future Meetings

The AAC meetings are now on the second Saturday of each month, still at the Fernbank Science Center and at 3PM. The next couple of meeting dates are: Aug 8, & Sept 12. There will be no meeting in October due to the Peach State Star Gaze. Monthly meetings will resume on November 14.

The Deerlick Astronomy Village, located about 100 miles east of Atlanta and 50 miles west of Augusta, has some of the darkest skies in the state.

July AAC General Meeting Report

By Alan Coffelt, AAC Recording Secretary. Photos by Tom Faber.

This month's general meeting was on Saturday, July 11th starting at 3pm at the Fernbank Science Center. There were 43 members and guests present for the meeting.

Our speaker was David Yenerall (middle photo, right), Lecturer of Astronomy at Georgia Perimeter College, and NASA/JPL Solar System Ambassador. David's talk was about the Gemini South Observatory, located in the Atacama Desert of Chile, and shared photographs taken by Manuel Paredes, Outreach and Audio Visual Productions Specialist at Gemini Observatory.

While Gemini North is in Hawaii, the Gemini South site is on Cerro Pachon, (elevation 9000 ft), in one of the best regions in the world for astronomical observations due to the dry climate, excellent seeing, and clear dark skies. It is one of the driest places on the planet. The local headquarters is in the Spanish colonial town of La Serena, which David says is a beautiful place to visit, having a Mediterranean-like climate on the coast. Gemini South can be operated remotely from there when weather conditions are too difficult to do so from the observatory (it sometimes snows there).

David shared some interesting general facts about the Gemini Observatories. Gemini is run by a consortium of countries including the U.S., Canada, Chile, Brazil, Argentina, Australia, and the U.K. which later dropped out. Each of the member countries are allotted telescope time based on their contribution. The cost of the two telescopes was about \$150M. The program is administered by the National Science Foundation while the day-to-day operations are run by the Association of Universities for Research in Astronomy. Between the two telescopes, the entire sky can be observed except for 1 degree at each of the earth's poles. A night's worth of observing at one of the telescopes works out to about \$33,000. When asked, David assured us that even if you had the money, you wouldn't be able to buy time on the telescope as it is in use just about all of the available time for approved research observations.

Next, David talked about the construction phase of Gemini South. The top of Cerro Pachon had to be removed so they would have a nice flat surface on which to build the facility. He showed us some of the photos from the construction, including the enormous pier for the telescope and the frame of the building. The telescope is a Ritchey-Chretien configuration and the mirror is 8.2 meters wide, weighs 22 tons, and has 1.8 focal ratio. It is so wide that they had to cut a notch in the walls of a tunnel on the road up the mountain in order to get it through! The dome was designed with tractable bay doors all the way around to allow air flow across the mirror to match/maintain the ambient temperature. As it is a rather thick mirror, there are 120 actuators that maintain the correct mirror shape due to temperature, pressure, or as the telescope moves to different parts of the sky. The mirror is coated with silver instead of aluminum and is optimized for sensitive observations in the mid infrared part of the spectrum through visible light. Because it is difficult to take the mirror off the mountain, a special vacuum chamber in the basement is used to periodically strip and recoat the mirror, insuring the best performance.

The telescope uses an instrument wheel on the back to allow different types of observations. The instruments that are used often are kept on the wheel full-time. Others can be swapped out. Most are provided by different universities around the world. Some of the instruments include adaptive optics systems, spectrographs, near infrared and mid-infrared instruments, and a near-infrared coronagraphic imager which has been used to verify exo-planet discoveries.

The multi-conjugate adaptive optics system on Gemini South is special because it uses five lasers (instead of just one) to create artificial stars with a known wavefront pointed near the target to measure atmospheric

disturbance and then compensate by altering the shape of the mirror (or a lens). This helps larger telescopes get better images and reach their full potential.

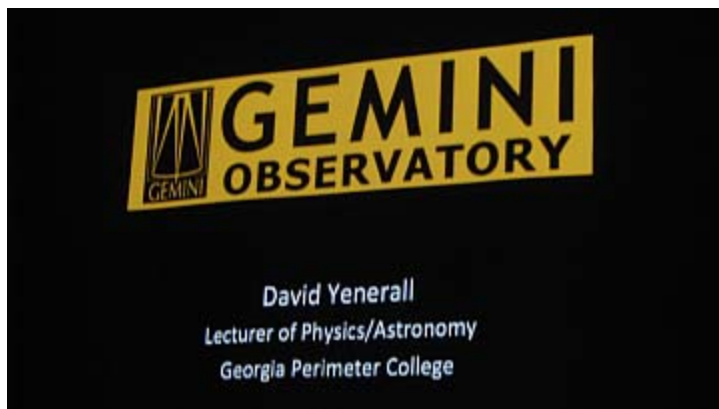
David next discussed the importance of outreach programs at facilities like Gemini to help people in nearby communities understand why astronomers are there and what they are doing. This includes visits to schools doing physics workshops, going to star parties, presenting at public events, and helping students take an active part in the program.

In his wrap-up, David shared web links where you can find out about the recent observations and featured images from Gemini:

<http://www.gemini.edu/sciops/releases>

<http://www.gemini.edu/gallery/v/Previous-Featured-Images/>

After the talk, there were club announcements about upcoming events and an invitation to join the club for guests who are interested. For future speaker programs and upcoming club event details and observing programs, see the club calendar or visit the club's Facebook page at <https://www.facebook.com/AtlantaAstronomy>.



The Charlie Elliott Summer Schedule

“**Summer Under the Stars**” Continues at Charlie Elliott on August 22

Come and join the Charlie Elliott Chapter on August 22nd for the final stargazing event of the summer on the Jon Wood Astronomy Field (33.468865, -83.735319) in Mansfield, GA. Members and visitors are invited to the Astronomy Field beginning at 8 PM. Bring your telescopes and binoculars (or just your eyeballs!) and come enjoy the night sky. A “Walk and Talk” to point out the summer constellations and planets will be held once the skies darken. Be sure to arrive before 10 PM, as the Elliott Trail security gate prevents new entries after that time. Details and updates will be posted a week before the event on the Charlie Elliott Astronomy Facebook page at <http://bit.ly/CEAstronomy>. More information about the Charlie Elliott chapter and its activities can be found at <http://ceastronomy.org>.

Leadership Transition

The Board of the Charlie Elliott Chapter has accepted a proposal from Marie Lott and Jack Fitzmier to provide interim leadership and summer programming until the fall, when the Chapter will elect new Officers, including Chapter Director, Observing Supervisor, and Recording Secretary. Marie and Jack have two goals for this interim period. First, they will provide the leadership necessary for the Chapter to continue, uninterrupted, our monthly observing sessions on Jon Wood Field (see above). Members and guests are welcome to join the Chapter on the field about 30 minutes before sundown. Marie and Jack, and other volunteers they enlist, will provide some “Walk and Talk” tours of the night skies. Otherwise, it’s time behind the eyepiece! Second, Marie and Jack will serve as a Nominations Committee, and will form a slate of candidates for Chapter Director, Observing Supervisor, and Recording Secretary, to be voted on at the September 19 Potluck and Chapter Meeting (time and place TBD). They will consult broadly with the CE membership to form the slate of candidates, and will also consult with members about possible adjustments to our Chapter bylaws. Open meetings for discussion will be scheduled in advance of the September meeting as necessary. If you have interest in assisting Marie and Jack over the summer, or if you have questions, please contact either of them at lott.marie@gmail.com or jfitzmier@gmail.com. Also note that the October CEA meeting has been moved from October 17 to October 10 to avoid conflict with the PSSG.

Upcoming DSO Dates and Locations

These are the dates for the next few AAC Dark Sky Observing events. All of these events are scheduled at Grier’s Field at the Deerlick Astronomy Village unless noted: Aug 15 (At the Brasstown Bald parking lot), Sept 19, No October DSO due to the PSSG, Nov 14, Dec 19. The locations and dates of the DSOs may change - check the AAC web page for updates.

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>

The Night Sky Network (NSN)

As a member of the Atlanta Astronomy Club, you have a free membership in NASA’s Night Sky Network (NSN). The Night Sky Network was started in 2004 and is a nationwide coalition of more than 400 amateur astronomy clubs that was developed and is operated for NASA by the Astronomical Society of the Pacific.

It functions to educate the public about NASA missions through local astronomy clubs by providing the clubs with information and outreach materials about NASA activities. Only members of registered astronomy clubs can become members of the NSN.

On a more practical level, the NSN provides the AAC with a website on which the AAC can maintain a club roster of members, maintain a calendar of events and send out e-mails to our members about Club activities. (In these days of anti-spam filters on most e-mail programs, this has been an invaluable resource for keeping members informed.)

When you are enrolled on the NSN you receive an e-mail from them on behalf of the AAC, with your User ID and your password. You can then go in and edit your membership information. If, for example, you do not wish to receive e-mails about upcoming events, you can check the box requesting no e-mails; or you can delete your e-mail address if you do not want ANY e-mails sent to you from the NSN.

If you do this, or make other changes (such as updating your contact information), PLEASE either forward a note to me at Treasurer@AtlantaAstronomy.org, or make a note in the “Notes on Membership” box, as I may think the change was an oversight when you were registered and not a deliberate choice on your part and I would re-enter the information.

Daniel Herron, Mark Banks and Sharon Carruthers are the AAC’s NSN coordinators. If you have a problem or question, contact us for help.

Sharon Carruthers, Treasurer@AtlantaAstronomy.org



The Door Has Been Opened!

On the next several pages are a sampling of the images return so far that were taken by the New Horizons spacecraft during its encounter with the Pluto system on July 14. In the 5 days following the flyby NH downlinked several “first look” and “high priority” sets of images and other data, including the ones shown here. This will pretty much it for

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images until mid-September when NH will begin to send back the full image set in 2 passes. The first pass will use lossy compression which will have some compression artifacts but will return the image set faster. NH will then resend the images using lossless compression, which will take longer but will not have compression artifacts. The full download of images and other data collected during the encounter will take over a year.

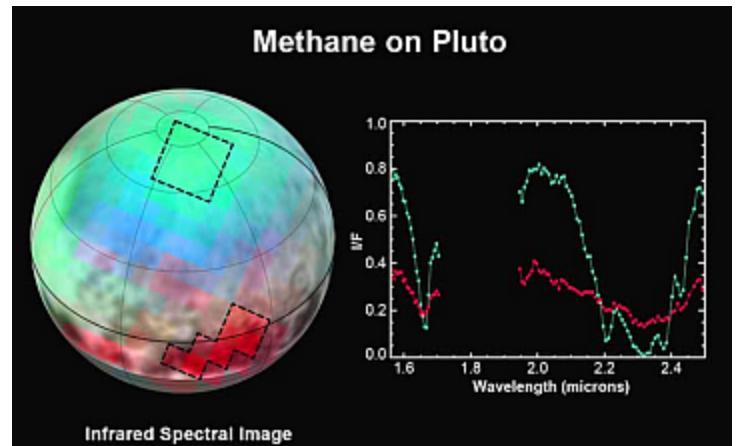
Between the end of the earlier downlinks and September 14 NH is focusing on returning real-time data on the space environment beyond Pluto.

All image credits: NASA/Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute unless noted.



Pluto nearly fills the frame in this image from the Long Range Reconnaissance Imager (LORRI) aboard NASA's New Horizons spacecraft, taken on July 13, 2015, when the spacecraft was 476,000 miles (768,000 kilometers) from the surface. This is the last and most detailed image sent to Earth before the spacecraft's closest approach to Pluto on July 14. The color image has been combined with lower-resolution color information from the Ralph instrument that was acquired earlier on July 13.

This view is dominated by the large, bright feature informally named the "heart," which measures approximately 1,000 miles (1,600 kilometers) across. The heart borders darker equatorial terrains, and the mottled terrain to its east (right) is complex. However, even at this resolution, much of the heart's interior appears remarkably featureless—possibly a sign of ongoing geologic processes.



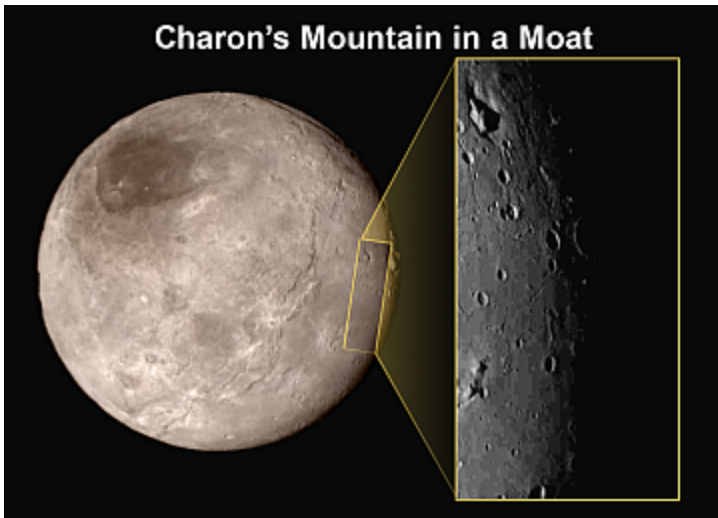
This spectra from New Horizons Ralph instrument reveal an abundance of methane ice, but with striking differences from place to place across the frozen surface of Pluto.

"We just learned that in the north polar cap, methane ice is diluted in a thick, transparent slab of nitrogen ice resulting in strong absorption of infrared light," said New Horizons co-investigator Will Grundy, Lowell Observatory, Flagstaff, Arizona. In one of the visually dark equatorial patches, the methane ice has shallower infrared absorptions indicative of a very different texture. "The spectrum appears as if the ice is less diluted in nitrogen," Grundy speculated "or that it has a different texture in that area."

An Earthly example of different textures of a frozen substance: a fluffy bank of clean snow is bright white, but compacted polar ice looks blue. New Horizons' surface composition team, led by Grundy, has begun the intricate process of analyzing Ralph data to determine the detailed compositions of the distinct regions on Pluto.

This is the first detailed image of Pluto from the Linear Etalon Imaging Spectral Array, part of the Ralph instrument on New Horizons. The observations were made at three wavelengths of infrared light, which are invisible to the human eye. In this picture, blue corresponds to light of wavelengths 1.62 to 1.70 micrometers, a channel covering a medium-strong absorption band of methane ice, green (1.97 to 2.05 micrometers) represents a channel where methane ice does not absorb light, and red (2.30 to 2.33 micrometers) is a channel where the light is very heavily absorbed by methane ice. The two areas outlined on Pluto show where Ralph observations obtained the spectral traces at the right. Note that the methane absorptions (notable dips) in the spectrum from the northern region are much deeper than the dips in the spectrum from the dark patch. The Ralph data were obtained by New Horizons on July 12, 2015.

Charon's Mountain in a Moat

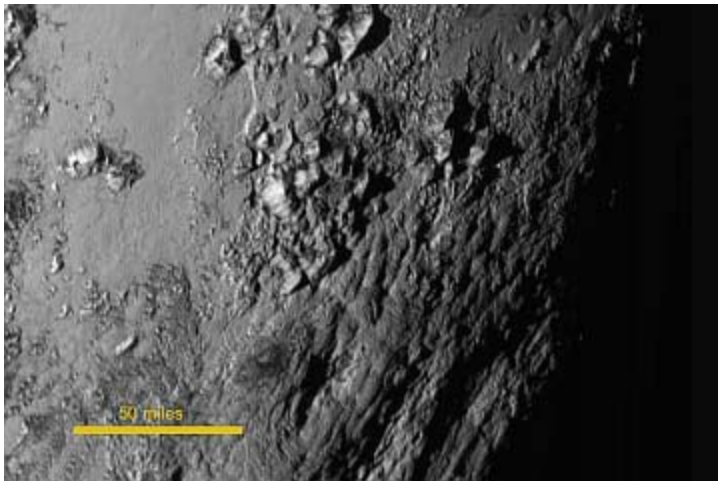


This image of an area on Pluto's largest moon Charon has a captivating feature—a depression with a peak in the middle, shown here in the upper left corner of the inset. The image shows an area approximately 240 miles (390 kilometers) from top to bottom, including few visible craters.

This image gives a preview of what the surface of this large moon will look like in future close-ups from NASA's New Horizons spacecraft. This image is heavily compressed; sharper versions are anticipated when the full-fidelity data from New Horizons' Long Range Reconnaissance Imager (LORRI) are returned to Earth.

The rectangle superimposed on the global view of Charon shows the approximate location of this close-up view.

The image was taken at approximately 6:30 a.m. EDT (10:30 UTC) on July 14, 2015, about 1.5 hours before closest approach to Pluto, from a range of 49,000 miles (79,000 kilometers).



New close-up images of a region near Pluto's equator reveal a giant surprise: a range of youthful mountains rising as high as 11,000 feet (3,500 meters) above the surface of the icy body.

The mountains likely formed no more than 100 million years ago -- mere youngsters relative to the 4.56-billion-year age of the solar system -- and may still be in the process of building, says Jeff Moore of New Horizons' Geology, Geophysics and Imaging Team (GGI). That suggests the close-up region, which covers less than one percent of Pluto's surface, may still be geologically active today.

Moore and his colleagues base the youthful age estimate on the lack of craters in this scene. Like the rest of Pluto, this region would presumably have been pummeled by space debris for billions of years and would have

once been heavily cratered -- unless recent activity had given the region a facelift, erasing those pockmarks.

"This is one of the youngest surfaces we've ever seen in the solar system," says Moore.

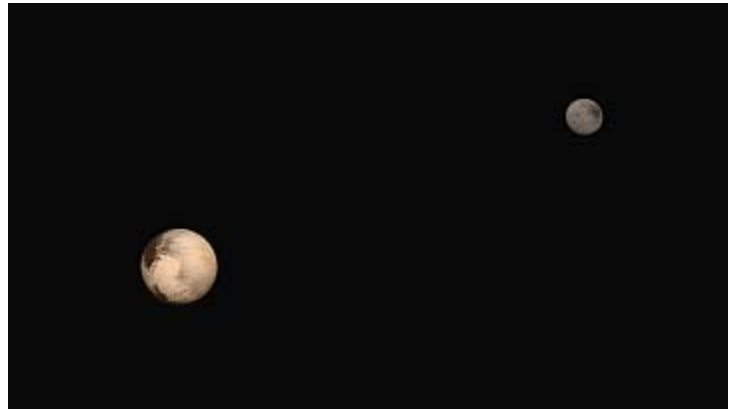
Unlike the icy moons of giant planets, Pluto cannot be heated by gravitational interactions with a much larger planetary body. Some other process must be generating the mountainous landscape.

"This may cause us to rethink what powers geological activity on many other icy worlds," says GGI deputy team leader John Spencer of the Southwest Research Institute in Boulder, Colo.

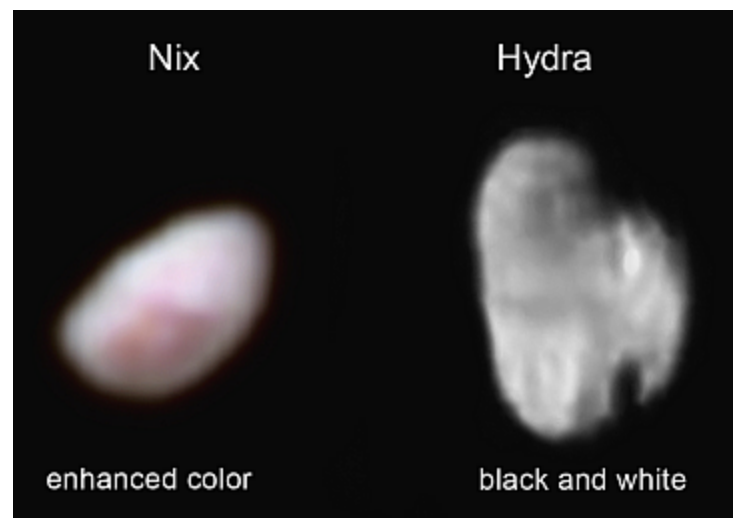
The mountains are probably composed of Pluto's water-ice "bedrock."

Although methane and nitrogen ice covers much of the surface of Pluto, these materials are not strong enough to build the mountains. Instead, a stiffer material, most likely water-ice, created the peaks. "At Pluto's temperatures, water-ice behaves more like rock," said deputy GGI lead Bill McKinnon of Washington University, St. Louis.

The close-up image was taken about 1.5 hours before New Horizons' closest approach to Pluto, when the craft was 47,800 miles (77,000 kilometers) from the surface of the planet. The image easily resolves structures smaller than a mile across.



Two full-frame images of Pluto and Charon were collected separately by New Horizons during approach on July 13 and July 14, 2015. The relative reflectivity, size, separation, and orientations of Pluto and Charon are approximated in this composite image, and they are shown in approximate true color.

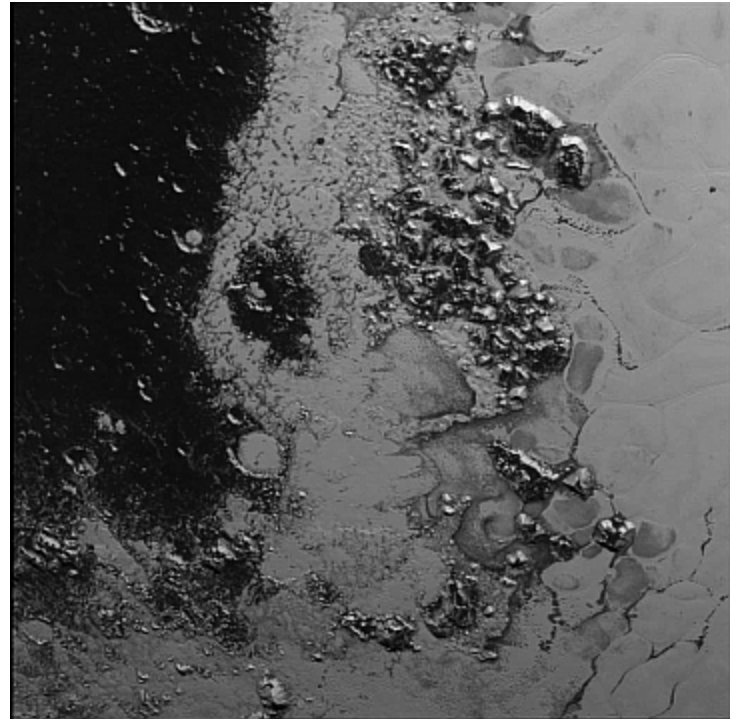


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Image previous page: Pluto's moon Nix (left), shown here in enhanced color as imaged by the New Horizons Ralph instrument, has a reddish spot that has attracted the interest of mission scientists. The data were obtained on the morning of July 14, 2015, and received on the ground on July 18. At the time the observations were taken New Horizons was about 102,000 miles (165,000 km) from Nix. The image shows features as small as approximately 2 miles (3 kilometers) across on Nix, which is estimated to be 26 miles (42 kilometers) long and 22 miles (36 kilometers) wide.

Pluto's small, irregularly shaped moon Hydra (right) is revealed in this black and white image taken from New Horizons' LORRI instrument on July 14, 2015 from a distance of about 143,000 miles (231,000 kilometers). Features as small as 0.7 miles (1.2 kilometers) are visible on Hydra, which measures 34 miles (55 kilometers) in length.

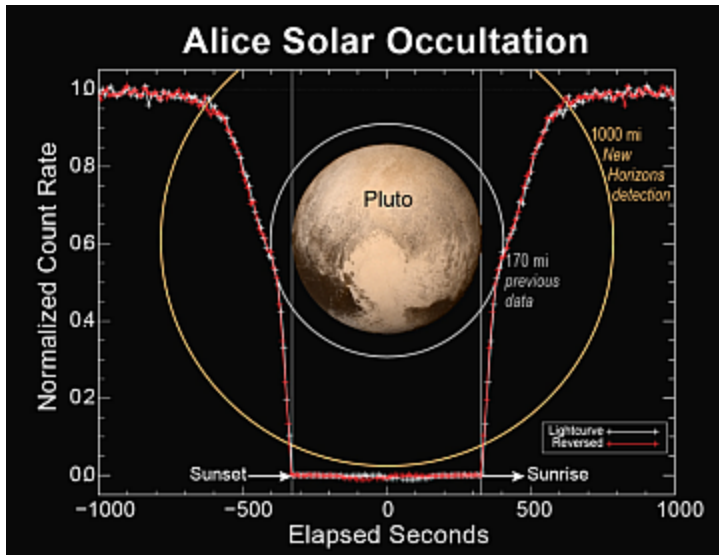
segments that are ringed by narrow troughs, some of which contain darker materials. Features that appear to be groups of mounds and fields of small pits are also visible. This image was acquired by the Long Range Reconnaissance Imager (LORRI) on July 14 from a distance of 48,000 miles (77,000 kilometers). Features as small as a half-mile (1 kilometer) across are visible. The blocky appearance of some features is due to compression of the image.



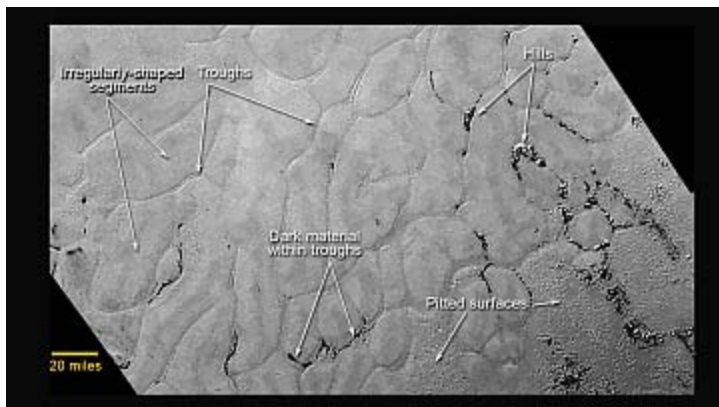
A newly discovered mountain range lies near the southwestern margin of Pluto's heart-shaped Tombaugh Regio (Tombaugh Region), situated between bright, icy plains and dark, heavily-cratered terrain.

This image was acquired by New Horizons' Long Range Reconnaissance Imager (LORRI) on July 14, 2015, from a distance of 48,000 miles (77,000 kilometers) and sent back to Earth on July 20. Features as small as a half-mile (1 kilometer) across are visible.

These frozen peaks are estimated to be one-half mile to one mile (1-1.5 kilometers) high, about the same height as the United States' Appalachian Mountains. The Norgay Montes (Norgay Mountains) discovered by New Horizons on July 15 more closely approximate the height of the taller Rocky Mountains. The names of features on Pluto have all been given on an informal basis by the New Horizons team.



This figure shows how the Alice instrument count rate changed over time during the sunset and sunrise observations. The count rate is largest when the line of sight to the sun is outside of the atmosphere at the start and end times. Molecular nitrogen (N₂) starts absorbing sunlight in the upper reaches of Pluto's atmosphere, decreasing as the spacecraft approaches the planet's shadow. As the occultation progresses, atmospheric methane and hydrocarbons can also absorb the sunlight and further decrease the count rate. When the spacecraft is totally in Pluto's shadow the count rate goes to zero. As the spacecraft emerges from Pluto's shadow into sunrise, the process is reversed. By plotting the observed count rate in the reverse time direction, it is seen that the atmospheres on opposite sides of Pluto are nearly identical.

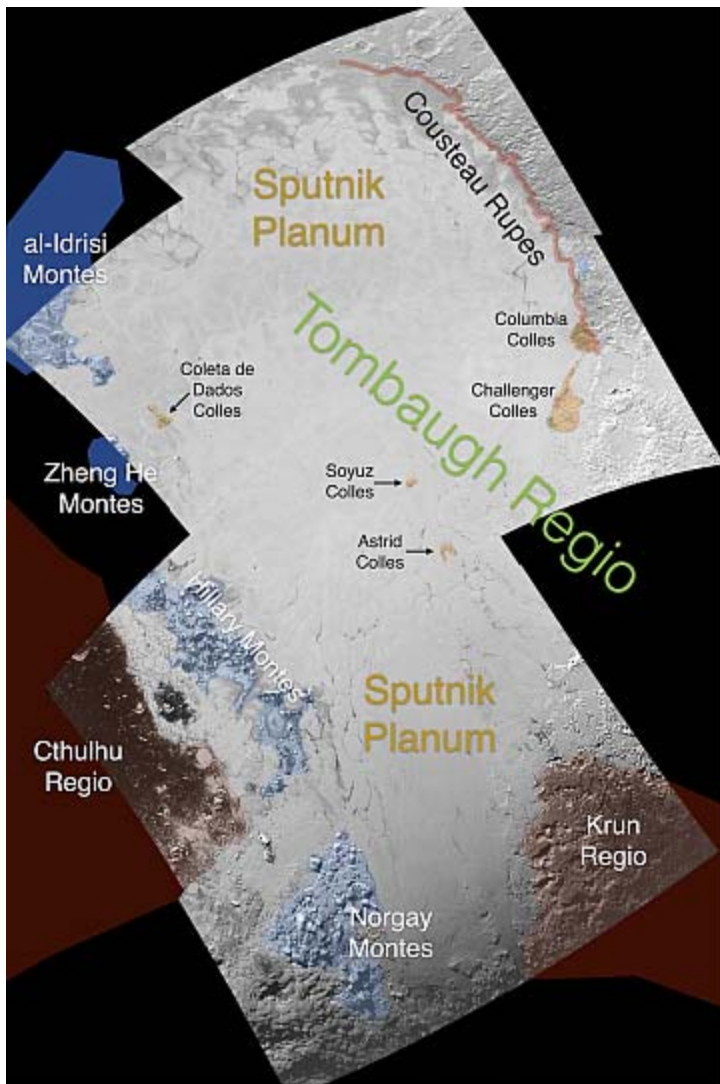


This annotated view of a portion of Pluto's Sputnik Planum (Sputnik Plain), named for Earth's first artificial satellite, shows an array of enigmatic features. The surface appears to be divided into irregularly shaped



Backlit by the sun, Pluto's atmosphere rings its silhouette like a luminous halo in this image. This global portrait of the atmosphere was captured July 15 when the spacecraft was about 1.25 million miles (2 million kilometers) beyond Pluto.

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This image contains the initial, informal names being used by the New Horizons team for the features on Pluto's Sputnik Planum (plain). Names were selected based on the input the team received from the Our Pluto naming campaign. Names have not yet been approved by the International Astronomical Union (IAU).

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 printed. 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/atlastro>.

AAC Officers and Contacts

President: Mark Banks President@AtlantaAstronomy.org

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Elliott Outreach Coordinator: Position Open
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PSSG Co-Chair: Open

Sidewalk Astronomy: Brad Isley
sidewalkastronomy@AtlantaAstronomy.org

Light Trespass: Ken Edwards, Contact info TBA

Woodruff Observ. Coordinator: Sharon Carruthers
Treasurer@AtlantaAstronomy.org

AAC Webmaster: Daniel Herron
Observing@AtlantaAstronomy.org

Calendar by Tom Faber (Times EDT/EST unless noted)

AAC Events are listed in BOLD

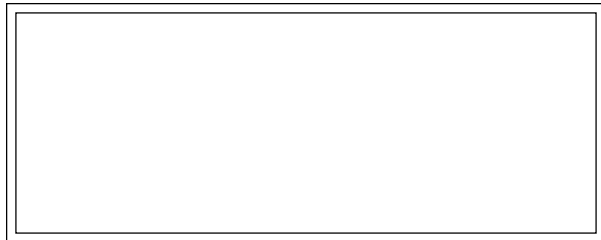
- Aug 6th, Thursday: Moon Last Quarter.
- Aug 7th, Friday: Close grouping of Mercury, Jupiter, & Regulus (low).
- Aug 8th, Saturday: **AAC Meeting at Fernbank Science Center 3:00PM.**
- Aug 12th, Wednesday: Perseid Meteor Shower.
- Aug 14th, Friday: New Moon.
- Aug 15th, Saturday: Venus at Inferior Conjunction - moves into morning sky.
- Aug 21st, Friday: Saturn at Eastern Quadrature - 90° east of the Sun.
- Aug 22nd, Saturday: **Observing at the Jon Wood Astronomy Field.** Moon First Quarter.
- Aug 29th, Saturday: Full Moon.
- Aug 31st, Monday: Neptune at Opposition (Magnitude 7.8).
- Sept 5th, Saturday: Moon Last Quarter.
- Sept 10th, Thursday: Crescent moon near Saturn.
- Sept 12th, Saturday: **AAC Meeting at Fernbank Science Center 3:00PM.**
- Sept 13th, Sunday: New Moon.
- Sept 19th, Saturday: **CEA Meeting and Potluck Dinner (time and place TBD).**
- Sept 21st, Monday: Moon First Quarter.
- Sept 23rd, Wednesday: Equinox - Autumn Begins at 4:21AM.
- Sept 25th, Friday: Mars near Regulus between Venus and Jupiter.
- Sept 27th, Sunday: Full Moon. Total Lunar Eclipse: Penumbra first visible ~8:40PM, Partial begins 9:07PM, Total begins 10:11PM, Mid-Eclipse 10:48PM, Total ends 11:23PM, Partial ends 12:27AM, Penumbra last visible ~12:55AM.
- Oct 4th, Sunday: Moon Last Quarter.
- Oct 10th, Saturday: **CEA Meeting in the Campbell Building (Note Date Change).**
- Oct 11th, Sunday: **Peach State Star Gaze begins 12:00PM.**
- Oct 12th, Monday: New Moon.
- Oct 18th, Sunday: **Peach State Star Gaze ends 12:00PM.**

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@atlantaastro.org. Please send images separate from articles, not embedded in them. Articles are preferred as plain text files but Word documents or PDF's are okay. You can submit articles anytime up to the deadline. **The deadline for September is Saturday, August 22. Submissions after the deadline will go in the following issue.**



FIRST CLASS



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We're here to help! Here's how to reach us:

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