The Focal Point

The Atlanta Astronomy Club
Established 1947
October 2019

Vol. 32 No. 2

Editor: Tom Faber

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No October AAC Meeting

Our meeting day, the 3rd Saturday of October, is the set-up day for the Peach State Star Gaze, and many of the Club officers will be there. Because of this conflict there will be no general meeting of the AAC in October. Please join us on Saturday, November 16 at the Fernbank Science Center for the next meeting of the AAC.

The 2019 Peach State Star Gaze

Mark your calendars for the 2019 Peach State Star Gaze which will be held from Sunday, October 20 to Sunday, October 27 at the Deerlick Astronomy Village! Information about the programs, speakers, and a link for on-line registration can be found at: http://atlantaastronomy.org/pssg/ And of course there will be lots of observing under some of the darkest skies in Georgia. The new moon occurs on Sunday, October 27. Micki's Kitchen is also scheduled to return with meals, sandwiches, hot coffee, hot chocolate and other drinks, and her famous brownies! See you there!

The Keynote Speaker

The PAST, PRESENT and FUTURE of the NASA Parker Solar Probe

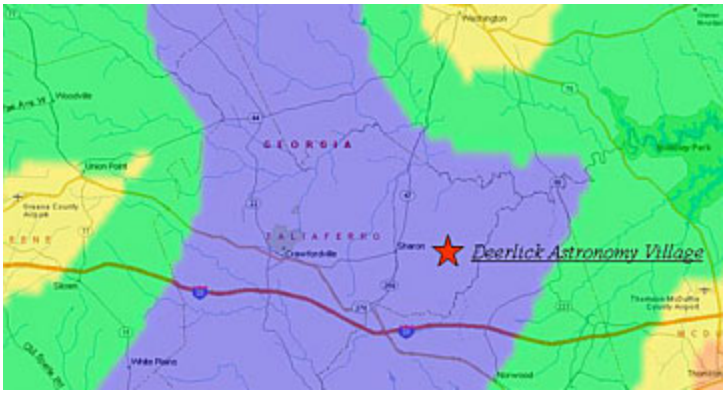
John O'Neal, NC Stargazer

The NASA Parker Solar Probe has embarked on a seven year mission to the Sun's inner atmosphere armed with a payload of scientific instruments to measure the solar wind and atmosphere up close & personal. These measurements will revolutionize our understanding of the mechanisms that drive the solar wind and space weather, and will provide insights into methods of mitigating the sun's potentially catastrophic effects on technological advancements and on life on Earth as we know it.

Join NASA SOLAR SYSTEM AMBASSADOR John O'Neal on this journey of discovery… Hear the history of the mission and learn about Dr. Eugene Parker, the first person in the history of the space program to have a craft named after him. Ride along as the craft takes off on a whirlwind journey to the center of our solar system to a place beyond our wildest imagining.

This comprehensive presentation will highlight the science behind the Parker Solar Probe and provide a closeup look at the instrument packages and their purposes. It will reveal the human and social reasons for visiting the sun, as well as the science objectives, the launch, the voyage from Cape Kennedy, the journey around Venus to the Sun, and will culminate in what we expect to learn from the probe and how it could conceivably save our entire species and world from the next solar extinction event.

Editor's Note: See page 7 for an illustration of the Parker Solar Probe



The AAC field at the DAV during the 2016 PSSG - Photo by Tom Faber.

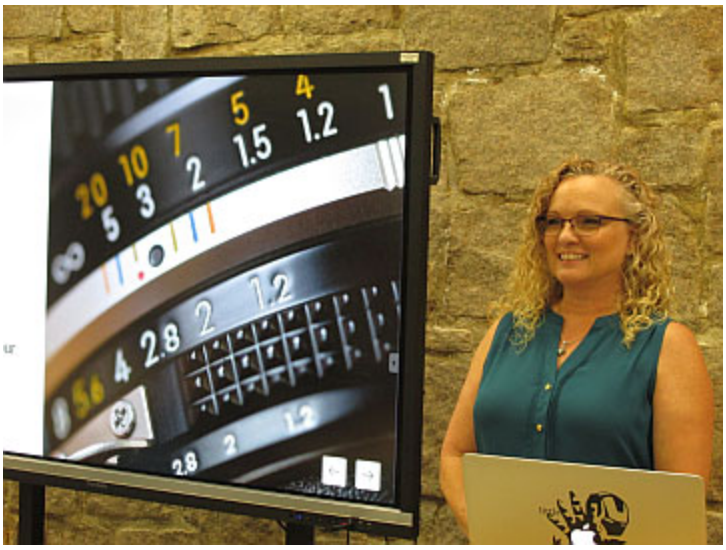
September AAC Meeting Report

Photos by Tom Faber

The September meeting of the AAC was held at the Fernbank Science Center Resource Center, beginning at 1:30PM, on Saturday, September 21. There were about 45 members and guests present. AAC President David Lumpkin (photo bottom) opened the meeting and gave various announcements.

Our speaker was astro-imager Amy Little (photo right). Amy gave a very interesting talk about how she got started in astrophotography. She talked about how she got started and how she progressed from simple star trail photos, on to wide field photography, telephoto photography, and on to doing astrophotography using a telescope. Amy talked some about how she processes her images, and showed us a number of her images. She then answered a number of questions.

After the meeting the AAC members were treated to a free show in the Fernbank Planetarium (photo right bottom). Afterwards a number of those present went to a local restaurant for food , drink, and more discussions of astronomy and photography.



Upcoming Charlie Elliott Meetings

Upcoming Charlie Elliott meetings will be held on: November 2, and December 7, 2019, January 25, February 22, March 21, April 18, May 23, 2020. 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.

The August 31 Charlie Elliott Meeting

Mike Mardis, Secretary, Charlie Elliott Chapter (covering for Daniel)

Meeting Minutes 8/3/2019 at the Charlie Elliott Conference Room B:

Pre-meeting: Start time NA

Meeting:

Date/Time 8/31/2019 at 1830-2200

Facilitator Mike Shaw

Meeting attendees 22

Agenda:

ANNOUNCEMENTS

• T-shirt design

• New gate code

• Peach State Star Gaze

• AAC 9/21 1330-1500 (new time/day). Free planetarium show at 3pm.

Briefings:

Q&A / discussion

Field participants - 25

Outreach by

Marie Lott

9/21 Morgan Co HS, Sat Hard Labor, 10/4 East Newton, 10/12 Anna Ruby Falls, 10/16 Mansfield ES, 10/26 Madison Fest

Upcoming Events

David Whalen - UPCOMING OUTREACH EVENTS

Hard Labor Creek State Park — Perseids Meteor Shower 8-10-19 from 2100 - 2359

Awards by: David Whalen N/A

Briefing speaker/topic: David Whalen

David Whalen	August update
Ken Poshedly	ALPO Journal

Handouts by:

David Whalen

Constellation Aquarius

Evening Sky Map

August Target List

Other news by:

Next meeting: Charlie Elliott Conference Room B at 5pm on 10/5/2019

Arches National Park Certified as an International Dark Sky Park

(From the IDA web site: www.darksky.org)

Southeast Utah Group News Release

Release date: July 5, 2019

Contact(s): Kate Cannon 435-719-2101, Nathan Ament 435-719-2227

MOAB, UT— The National Park Service and the International Dark-Sky Association are pleased to announce Arches National Park as an International Dark Sky Park, a place recognized for its quality night skies and a commitment to protecting and sharing natural darkness.

Park rangers from around the Colorado Plateau will host a ceremony and star party to celebrate on Sept. 21, 2019, at the newly completed Panorama Point stargazing area within the park. More details on this event will be available soon.

Rangers have led regular astronomy programs and special events in the park since at least 2012. They regularly work with staff from nearby dark sky parks to offer Moab-area visitors an opportunity to explore the night sky. International dark sky park certification gives Arches National Park support to grow these programs and creates economic opportunities for neighboring communities through astronomy-based tourism.

“I am grateful that the International Dark-Sky Association has recognized the southeast Utah parks’ efforts to share spectacular dark skies with the public,” said Kate Cannon, Southeast Utah Group superintendent. “The certification for Arches is the culmination of more than 10 years’ effort to preserve and share dark night skies in southeast Utah.”

Arches is one of four parks included in the National Park Service’s Southeast Utah Group. The other parks, Canyonlands National Park, and Hovenweep and Natural Bridges national monuments, have all received International Dark Sky Park certifications in recent years. Natural Bridges National Monument was certified as the world’s first international dark sky park in 2007. All four parks work together with neighboring organizations, businesses, communities, and land managers to showcase some of the darkest skies in the United States.

The certification does not carry legal or regulatory authority. Instead, it demonstrates a commitment by parks to improve night skies through the use of more energy-efficient, sustainable lighting. Certification also reaffirms the park’s commitment to educate the public and nearby communities about the importance of good lighting and opportunities to

Continued on next page

Turret Arch, Arches National Park. Photo: Bettymaya Foott

work together toward common goals.

“The work that was done at Arches National Park was a team effort including National Park Service employees, the Friends of Arches and Canyonlands National Parks, and the City of Moab and Grand County,” said Cannon. “It was a true team effort.”

In recent years, Arches staff have revamped and replaced light fixtures with fully-shielded bulbs. Nearly 100 percent of the park’s lights are now “night-sky friendly,” which means they follow the recommendations by the International Dark-Sky Association to minimize glare as well as the amount of blue light emitted at night.

Park staff also worked closely with the Colorado Dark Sky Cooperative and Moab Dark Skies to engage the city of Moab and Grand County in preserving and enjoying naturally dark skies.

Arches was first established as a national monument in 1929 for its “gigantic arches, natural bridges, windows, spires, balanced rocks, and other unique wind-worn sandstone formations….” Today’s visitors come from all over the world to explore the world’s largest concentration of natural stone arches, as well as spectacular night skies they might not see from home.

The International Dark Sky Places Program was founded in 2001 to encourage communities, parks, and protected areas around the world to preserve and protect dark sites through responsible lighting policies and public education. Arches National Park now joins more than 100 locations that have followed a rigorous application process that demonstrates robust community support for dark sky certification.

A Close-Up Look at Jupiter’s Dynamic Atmosphere

NASA/STScI News Release - August 08, 2019

This new Hubble Space Telescope view of Jupiter, taken on June 27, 2019, reveals the giant planet’s trademark Great Red Spot, and a more intense color palette in the clouds swirling in Jupiter's turbulent atmosphere than seen in previous years. The colors, and their changes, provide important clues to ongoing processes in Jupiter's atmosphere.

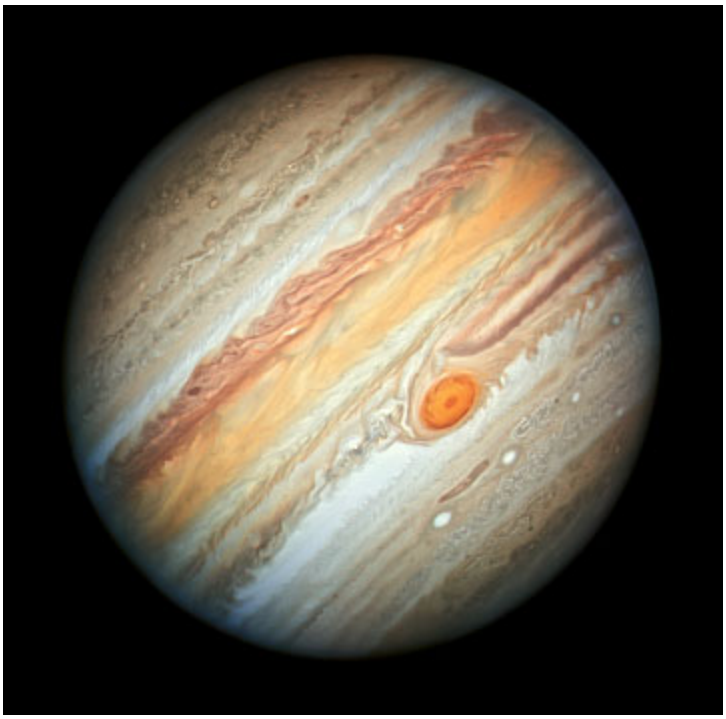
The bands are created by differences in the thickness and height of the ammonia ice clouds. The colorful bands, which flow in opposite directions at various latitudes, result from different atmospheric pressures. Lighter bands rise higher and have thicker clouds than the darker bands.

Among the most striking features in the image are the rich colors of the clouds moving toward the Great Red Spot, a storm rolling counterclockwise between two bands of clouds. These two cloud bands, above and below the Great Red Spot, are moving in opposite directions. The red band above and to the right (northeast) of the Great Red Spot contains clouds moving westward and around the north of the giant tempest. The white clouds to the left (southwest) of the storm are moving eastward to the south of the spot.

All of Jupiter’s colorful cloud bands in this image are confined to the north and south by jet streams that remain constant, even when the bands change color. The bands are all separated by winds that can reach speeds of up to 400 miles (644 kilometers) per hour.

On the opposite side of the planet,the band of deep red color northeast of the Great Red Spot and the bright white band to the southeast of it become much fainter. The swirling filaments seen around the outer edge of the red super storm are high-altitude clouds that are being pulled in and around it.

The Great Red Spot is a towering structure shaped like a wedding cake, whose upper haze layer extends more than 3 miles (5 kilometers) higher than clouds in other areas. The gigantic structure, with a diameter slightly larger than Earth's, is a high-pressure wind system called an anticyclone



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

that has been slowly downsizing since the 1800s. The reason for this change in size is still unknown.

A worm-shaped feature located below the Great Red Spot is a cyclone, a vortex around a low-pressure area with winds spinning in the opposite direction from the Red Spot. Researchers have observed cyclones with a wide variety of different appearances across the planet. The two white oval-shaped features are anticyclones, like small versions of the Great Red Spot.

Another interesting detail is the color of the wide band at the equator. The bright orange color may be a sign that deeper clouds are starting to clear out, emphasizing red particles in the overlying haze.

The new image was taken in visible light as part of the Outer Planets Atmospheres Legacy program, or OPAL. The program provides yearly Hubble global views of the outer planets to look for changes in their storms, winds, and clouds.

Hubble's Wide Field Camera 3 observed Jupiter when the planet was 400 million miles from Earth, when Jupiter was near “opposition” or almost directly opposite the Sun in the sky.

Mercury Transits the Sun

Mark your calendars for Monday, November 11. On that day the last transit of Mercury until November 2032 will take place, and the entire transit will be visible from the eastern United States. The transit begins at 7:35AM EST (sunrise in the Atlanta area is at 7:06AM) with first contact, and Mercury’s tiny disk takes only one minute and 41 seconds to reach second contact. The midpoint of the transit occurs at 10:20AM with Mercury slightly north of the center of the sun’s disk. The transit will end at 1:04PM EST when Mercury reaches 4th contact, exiting the sun’s disk.

Saturn's Rings in New Hubble Portrait

NASA/STScI News Release - September 12, 2019

Hubble's Annual Snapshots Help Astronomers Monitor the Ringed World

Saturn is so beautiful that astronomers cannot resist using the Hubble Space Telescope to take yearly snapshots of the ringed world when it is near its closest distance to Earth.

These images, however, are more than just beauty shots. They reveal a planet with a turbulent, dynamic atmosphere. This year's Hubble offering, for example, shows that a large storm visible in the 2018 Hubble image in the north polar region has vanished. Smaller storms pop into view like popcorn kernels popping in a microwave oven before disappearing just as quickly. Even the planet's banded structure reveals subtle changes in color.

But the latest image shows plenty that hasn't changed. The mysterious six-sided pattern, called the "hexagon", still exists on the north pole. Caused by a high-speed jet stream, the hexagon was discovered in 1981 by NASA's Voyager 1 spacecraft.

Saturn's signature rings are still as stunning as ever. The image reveals that the ring system is tilted toward Earth, giving viewers a magnificent look at the bright, icy structure. Hubble resolves numerous ringlets and the fainter inner rings.

This image reveals an unprecedented clarity only seen previously in snapshots taken by NASA spacecraft visiting the distant planet. Astronomers will continue their yearly monitoring of the planet to track shifting weather patterns and identify other changes. The second in the yearly series, this image is part of the Outer Planets Atmospheres Legacy (OPAL) project. OPAL is helping scientists understand the atmospheric dynamics and evolution of our solar system's gas giant planets.

Credits: NASA, ESA, A. Simon (Goddard Space Flight Center), M.H. Wong (University of California, Berkeley), and the OPAL Team

Hubble Explores the Formation and Evolution of Star Clusters in the Large Magellanic Cloud

NASA/STScI News Release - September 9, 2019

Different structures of star clusters are due to different levels of dynamical aging.

Like batches of cookies, stars are born together in groups. These star clusters, containing as many as 1 million members, evolve over time largely through a gravitational pinball where more massive stars are segregated from lower mass stars. Heavy stars tend to progressively sink toward the central region of the star cluster, while low-mass stars can escape from the system.

For the first time, the Hubble Space Telescope has been used to measure the effects of this dynamical aging on star clusters. They are all located 160,000 light-years from Earth in a satellite galaxy, the Large Magellanic Cloud (LMC). The diminutive galaxy is an ideal target because it hosts a selection of easily observed star clusters covering a wide range of ages.

Francesco Ferraro of the University of Bologna in Italy and his team used Hubble to observe five aging LMC star clusters — all born at about the same time but with different sizes — and succeeded in ranking them in terms of the level of dynamical evolution, which affects their shape.

Here's the abstract of the paper by F. Ferraro et al:

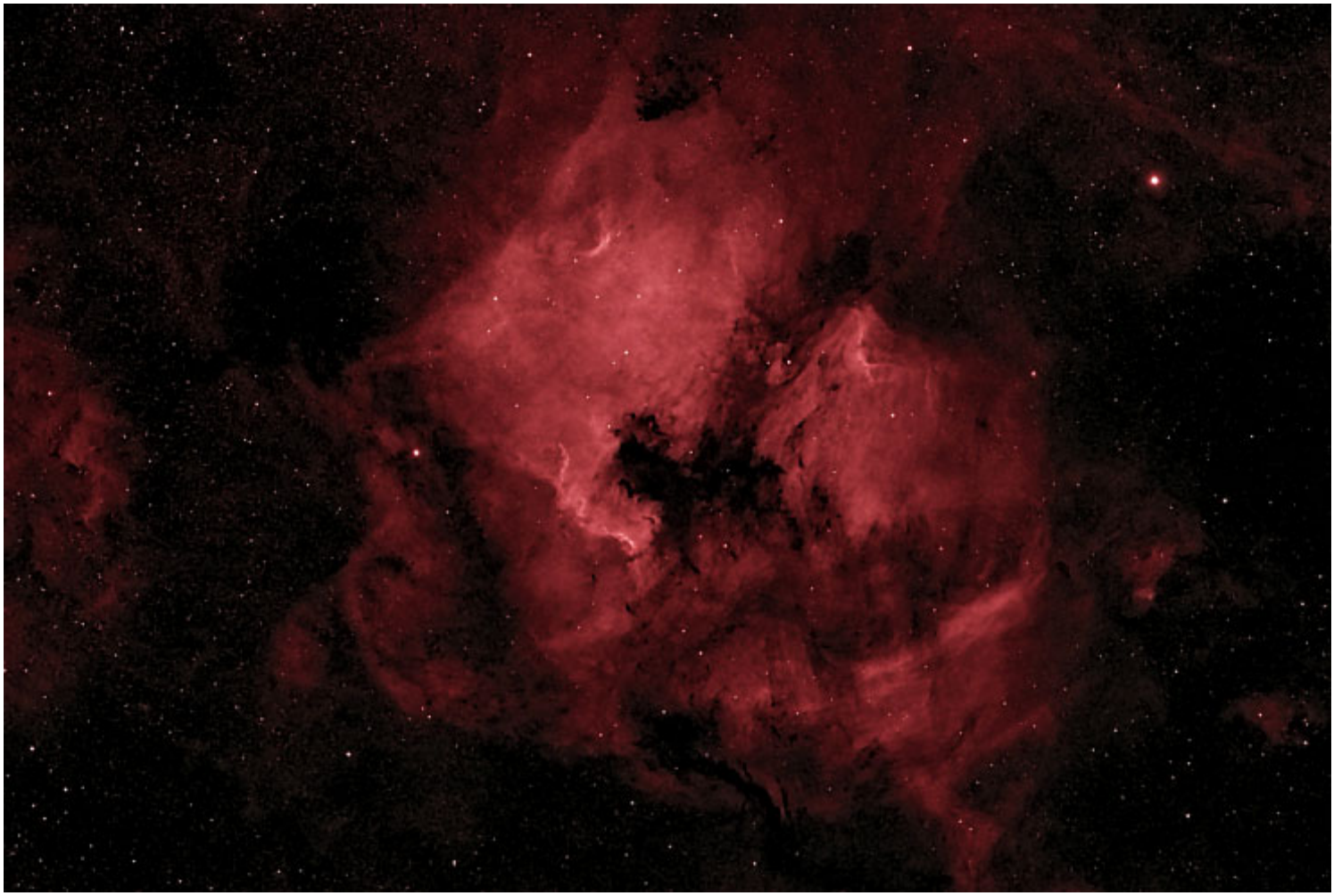
https://www.nature.com/articles/s41550-019-0865-1

Globular Star Cluster NGC 1466

Credits: Image: NASA and ESA; Science: NASA, ESA, and F. Ferraro (University of Bologna, Italy)

Images by Dan Llewellyn

A bit of Narrowband Hydrogen Alpha imaging of the North America Nebula, Swan, and surrounding area. This was shot with my Sony A7S with the cooler broken..gotta send it back for repair, BUT, I was able to control the noise at the expense of detail. Still looks reasonable, shot with a Telescope Service 61 EDPH at around 250mm focal length. Stack of 6, 5 minute exposures.



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

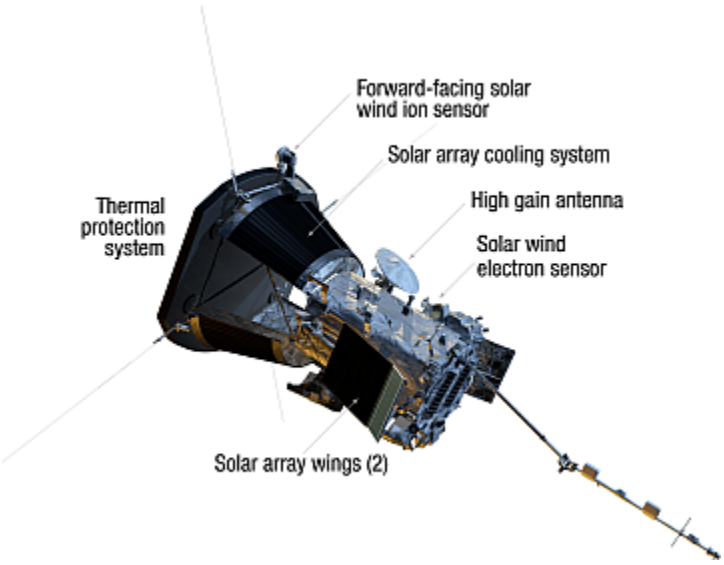
Continued on next page

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



An illustration of the Parker Solar Probe. NASA/JHUAPL

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/atlastro.

AAC Officers and Contacts

President: Dave Lumpkin President@AtlantaAstronomy.org

Program Chair: Ken Poshedly Programs@AtlantaAstronomy.org

Observing Chair: Daniel Herron Observing@AtlantaAstronomy.org

Corresponding Secretary: Tom Faber Focalpoint@AtlantaAstronomy.org

Treasurer: Sharon Carruthers Treasurer@AtlantaAstronomy.org

Recording Secretary: Lilli Lindbeck, Secretary@AtlantaAstronomy.org

Board Chair: Sharon Carruthers Treasurer@AtlantaAstronomy.org

Board: Brigitte Fessele, bhfessele1@gmail.com

Board: Open

Board: Steve Phillips sandsphillips@att.net

ALCor: Ken Olson, keneolson@yahoo.com

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Elliott Observing Supervisor: Steve Siedentop observing@ceastronomy.org

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Elliott Program Coordinator: Steve Siedentop program@ceastronomy.org

Elliott Outreach Coordinator: Marie Lott outreach@ceastronomy.org

Elliott Astrophotography Coordinator: Mike Mardis

Elliott Chapter AL Liaison: David Whalen

Elliott Facilities Coordinator: Matt Harvey facilities@CEastronomy.org

Georgia Astronomy in State Parks: Sharon Carruthers Treasurer@AtlantaAstronomy.org

PSSG Chairman: Peter Macumber pmacumber@nightsky.org

PSSG Co-Chair: Open

Sidewalk Astronomy: Open sidewalkastronomy@AtlantaAstronomy.org

Light Tresspass: Ken Edwards, Contact info TBA

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

AAC Webmaster: Daniel Herron

Observing@AtlantaAstronomy.org

The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

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

Atlanta Astronomy Club
P.O. Box 76155
Atlanta, GA 30358-1155
www.atlantaastronomy.org
On Twitter at http://twitter.com/atlastro

FIRST CLASS

www.beetagg.com

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

AAC Events are listed in BOLD

Oct 5th, Saturday: **CEA Chapter Meeting.** Moon First Quarter - near Jupiter.
Oct 9th, Wednesday: Southern Taurids Meteor Shower peak.
Oct 13th, Sunday: Full Moon (Hunters Moon).
Oct 20th, Sunday: **Peach State Star Gaze starts at 12:00PM.**
Oct 21st, Monday: Moon Last Quarter. Orionids Meteor Shower peak.
Oct 26th, Saturday: Moon near Regulus morning.
Oct 27th, Sunday: **Peach State Star Gaze ends.** New Moon.
Oct 28th, Monday: Uranus at Opposition.
Nov 1st, Friday: Moon near Venus evening.
Nov 2nd, Saturday: **CEA Chapter Meeting.**
Nov 4th, Monday: Moon First Quarter.
Nov 11th, Monday: Mercury transits the Sun: First contact 7:35AM, Mid-transit 10:20AM, Last contact 1:04PM. (Last Mecury transit until Nov 13, 2032).
Nov 12th, Tuesday: Full Moon.
Nov 16th, Saturday: **AAC Meeting at Fernbank 1:30PM.** Leonid Meteor Shower peak.
Nov 19th, Tuesday: Moon Last Quarter.
Nov 23rd, Saturday: Venus near Jupiter evening.
Nov 24th, Sunday: Moon near Mars morning.
Nov 25th, Monday: Moon near Mercury morning.
Nov 26th, Tuesday: New Moon.
Nov 28th, Thursday: Moon near Venus evening. Mercury at greatest western elongation.
Nov 29th, Friday: Moon near Saturn evening.
Dec 4th, Wednesday: Moon First Quarter.
Dec 7th, Saturday: **CEA Chapter Meeting.**

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 November is Wednesday, October 30. Submissions received after the deadline will go in the following issue**.