

The Focal Point

The Atlanta Astronomy Club
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Editor: Tom Faber

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Charlie Elliott October Bonus Observing

October 7th, 2023 at 7:12 p.m. (sunset) on Jon Wood Astronomy Field. Please note, that this event is subject to the weather cooperating. We'll update this web page (<http://ceastronomy.org/blog/home/>) and the Charlie Elliott Facebook Page as we get closer to the date and the weather forecast becomes more reliable.



Note: There will be no October CEA meeting because of the Peach State Star Gaze.

A few items to note:

Plan to treat this outing like you would a camping trip and be prepared. Dress appropriately for the weather and the environment, bring snacks and drinks if needed, and plan to take your trash with you.

There is a regularly serviced Porta-Potty on the field.

The main gate on Elliott Trail closes to new entry by vehicle at 7 p.m., but will automatically open for exiting traffic at all times. If you are not a member and plan to arrive after 7 p.m., please make arrangements with a club member for access at least a day in advance.

Please refrain from using white light on the field. Red headlamps are cheap and easy to find at your favorite store. They're even cheaper to make with a spare flashlight and red nail-polish on the lens.

For more information about Charlie Elliott Wildlife Center, please visit the Charlie Elliott website.

<https://gegiawildlife.com/charlie-elliott-wildlife-center>

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AAC Meeting Tuesday, Nov 14th!

The Atlanta Astronomy Club will hold its next general meeting on Tuesday, November 14, in the Sandy Springs Library at 395 Mount Vernon Hwy NE, Sandy Springs, GA 30328 (see maps on next page). The meeting will be held from 6:30-7:45PM. The meeting agenda is to be determined. Some club business will be presented and member catch-ups will occur. There will also be a speaker - topic TBD.

The 2023 Peach State Star Gaze!

Ready to get back under dark skies? Then you'll want to be at the 2023 Peach State Star Gaze! The Atlanta Astronomy Club's annual Peach State Star Gaze is scheduled for Sunday, October 8th to Sunday, October 15th at the Deerlick Astronomy Village near Sharon, Georgia. New Moon will be on Saturday, October 14 (with a partial solar eclipse!). Program information is being updated as information is received.

NOTE: Micki's Kitchen is unable to attend this year. Coffee, Tea, Soft Drinks and Snacks will be available.

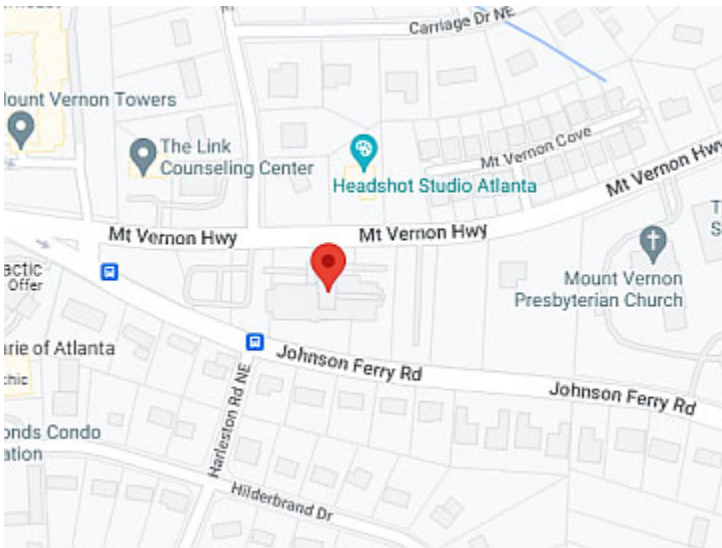
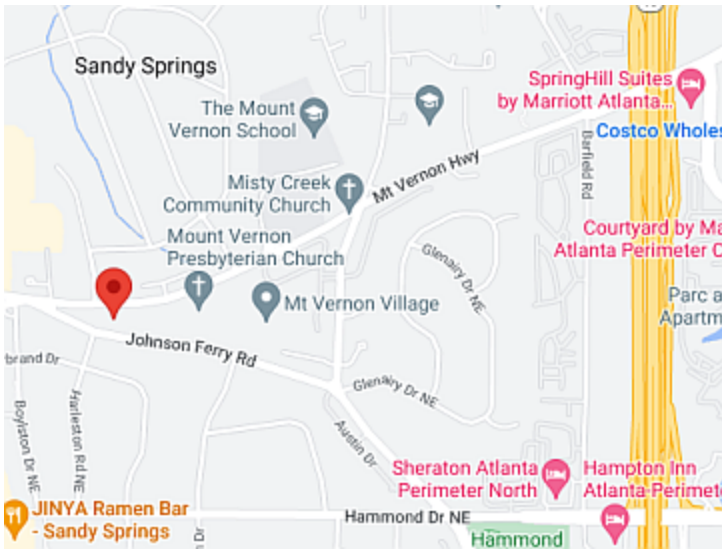
Pre-registration has closed, but walk-ins are still welcome.

More information about the PSSG can be found here: <https://www.atlantaastronomy.org/pssg/>



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





Credit: Google Maps

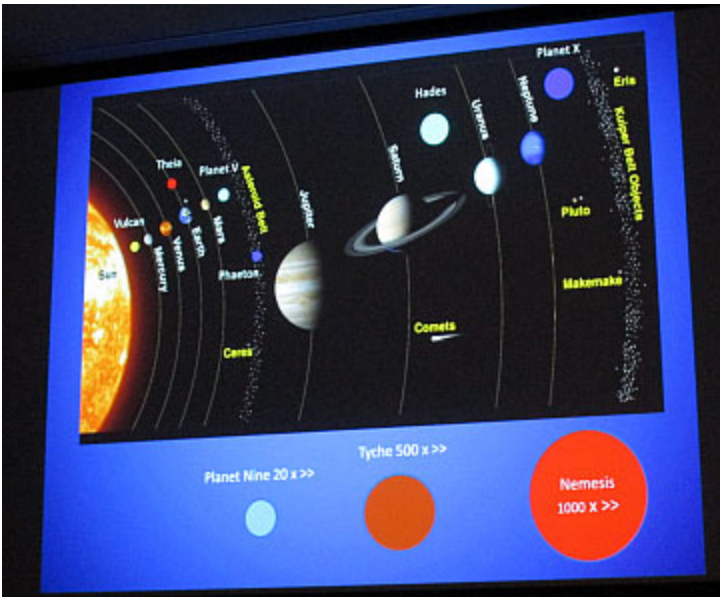
AAC October Meeting Report

Photos by Tom Faber

The Atlanta Astronomy Club's October general meeting was held on Tuesday, October 3, in the Sandy Springs Library starting at 6:30PM. About 12 club members and guests were present.

Club member Phil Danneman presented a very interesting talk titled "Hypothetical Planets", in which he talked about planets that have been postulated to exist but eventually disproven, such as Vulcan, Planet X, and Planet 5, and others that have all but disproven. However there was one that was mathematically predicted, based on perturbations to the orbit of Uranus, and actually discovered - Neptune.

Join us at the Sandy Springs Library at 6:30PM on Tuesday, November 14 for the next AAC General Meeting.



Location, Location, Location — To find the Jon Wood Astronomy Field: Head to Mansfield on Hwy 11, Turn off Hwy 11 onto Marben Farm Road (just south of Mansfield), Turn right onto Elliott Trail, Go a short distance, then turn right onto the dirt driveway that leads up to the Jon Wood Astronomy Field. See map to the right.

Observing on the Jon Wood Astronomy Field

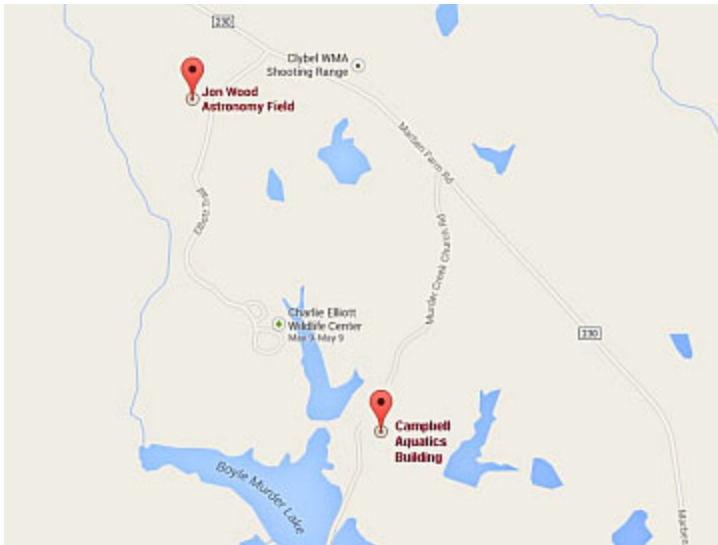
Please refrain from using white lights on the observing field to preserve night vision. Red lights are readily available at department and sporting goods stores in the Atlanta area. As stated above all are invited, however, to bring their own telescopes or binoculars or at least their interest in astronomy. For more information about Charlie Elliott Wildlife Center, visit: <https://georgiawildlife.com/charlie-elliott-wildlife-center>

Our Monthly Meetings and Public Observing Nights

Our monthly meetings and public observing nights are free and open to the public. Visit the “Our Calendar” tab at the top of the page for our 2023 meeting, observing, and outreach schedule. Start times vary through the year so please check back for details. View our Full Calendar of all meetings & outreach events here:

<http://ceastronomy.org/blog/outreach/charlie-elliott-astronomy-calendar>

It’s easy to become a member of Charlie Elliott Astronomy! Pay dues with PayPal here: <http://atlantaastronomy.org/membership/>



Credit: Google Maps

20,000-Year-Old Explosion Continues Expanding Into Space

NASA/STScI News Release - September 28, 2023

The abrupt, explosive death of a massive star, called a supernova, is one of the biggest blasts in the universe since the big bang. What's left behind are shredded stellar remnants resembling a fluffy cotton ball. The explosion expands from a smudge of light into a wispy, entangled cobweb of glowing gasses.

One of the nearest supernova remnants is the Cygnus Loop, located high in the summer sky. It has ballooned to 120 light-years in diameter. The energy needed to inflate such a huge structure is beyond imagination.

If it could be seen with the naked eye, the Cygnus Loop would be the angular diameter of six full Moons stretched across the sky. Put another way, it would appear to be the width of three fingers held at arm's length. Given its size, the Cygnus Loop is a favorite target of amateur star gazers.

Astronomers used the power of the Hubble Space Telescope to zoom in for a close-up look at one sliver of the nebula. They found gossamer filaments resembling wrinkles in a bedsheet stretched across two light-years. The filaments are at the outer edge of the expanding bubble, plowing into interstellar space.

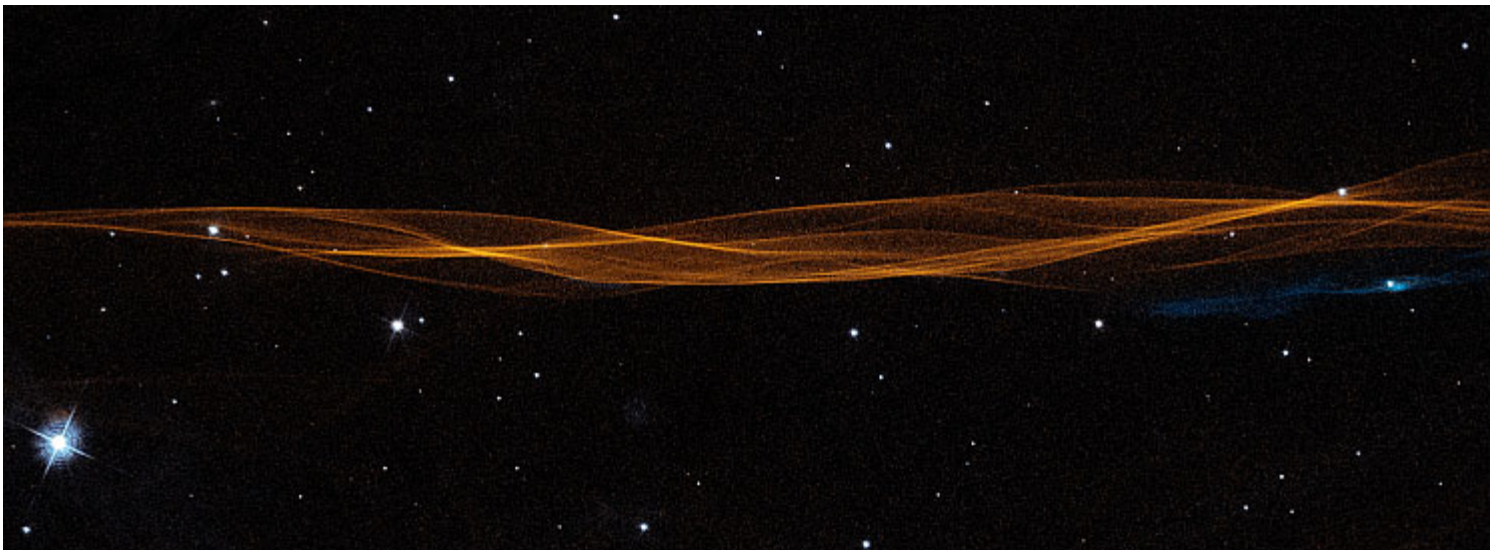
Analyzing the shock wave's location, astronomers found that the filaments haven't slowed down at all in the last 20 years of Hubble observations. The filaments haven't even changed shape. The material is speeding into interstellar space at over half a million miles per hour – fast enough to travel from Earth to the Moon in less than half an hour!

Though a doomed star exploded some 20,000 years ago, its tattered remnants continue racing into space at breakneck speeds – and NASA's Hubble Space Telescope has caught the action.

The nebula, called the Cygnus Loop, forms a bubble-like shape that is about 120 light-years in diameter. The distance to its center is approximately 2,600 light-years. The entire nebula has a width of six full Moons as seen on the sky.

Astronomers used Hubble to zoom into a very small slice of the leading edge of this expanding supernova bubble, where the supernova blast wave plows into surrounding material in space. Hubble images taken from 2001 to 2020 clearly demonstrate how the remnant's shock front has expanded over time, and they used the crisp images to clock its speed.

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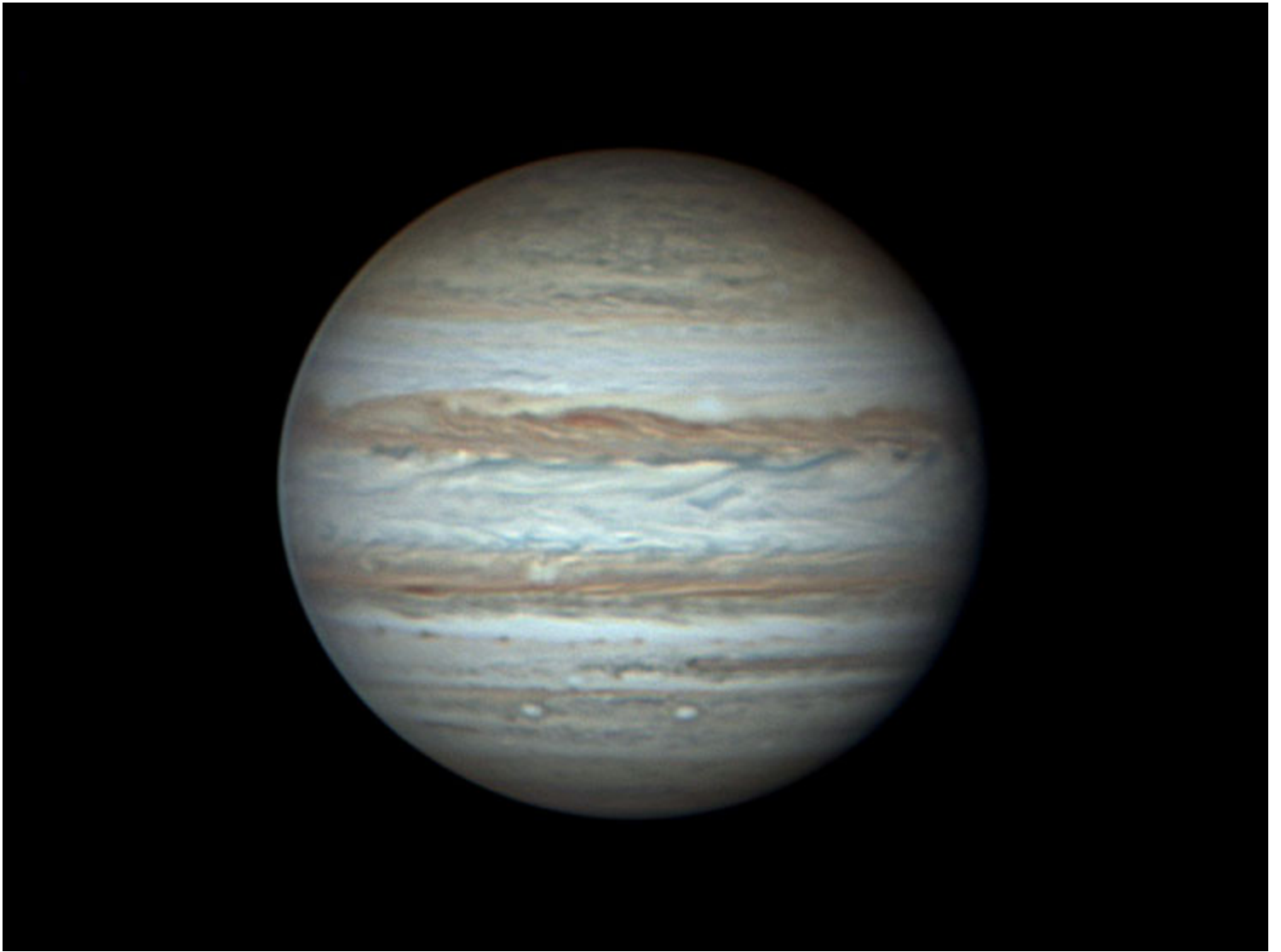
Saturn: Sept. 29, 2023

*2023-09-30 (yyyy-mm-dd), 02:52.9 UT CM I 52.9° CM II
246.5° CM III 160.7° D = 18.53", De = 10.1 Mv = 0.6*



*304 mm at f/27. ASI 290 MM + RGB filters. Seeing 5(10),
Transparency 6(10). Rich Jakiel, Lithia Springs, GA USA*

Saturn by Richard Jakiel



Jupiter by Clay Turner

Jupiter shot on 1 Oct 2023. Orientation is North Up. 11000 frames shot, Stack of best 4400. Stacked with AutoStackert3, Wavelet Processing with RegiStax. Telescope is vintage C14 with 2X Powermate and micro Crayford focuser. ADC was used. Camera is ZWO ASI290. Individual frames were 10 mSec.



NGC 45 by Richard Jakiel

Here's an object well off the "beaten path". This is NGC 45, a low surface brightness spiral nearly overshadowed by a bright foreground star. Located 21.7 million LY in the constellation of Cetus, it lacks well defined spiral structure. Richard made this image using an 11-inch RASA telescope during the 2017 Peach State Star Gaze.

https://en.wikipedia.org/wiki/NGC_45

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By analyzing the shock's location, astronomers found that the shock hasn't slowed down at all in the last 20 years, and is speeding into interstellar space at over half a million miles per hour – fast enough to travel from Earth to the Moon in less than half an hour. While this seems incredibly fast, it's actually on the slow end for the speed of a supernova shock wave. Researchers were able to assemble a "movie" from Hubble images for a close-up look at how the tattered star is slamming into interstellar space.

"Hubble is the only way that we can actually watch what's happening at the edge of the bubble with such clarity," said Ravi Sankrit, an astronomer at the Space Telescope Science Institute in Baltimore, Maryland. "The Hubble images are spectacular when you look at them in detail. They're telling us about the density differences encountered by the supernova shocks as they propagate through space, and the turbulence in the regions behind these shocks."

A very close-up look at a nearly two-light-year-long section of the filaments of glowing hydrogen shows that they look like a wrinkled sheet seen from the side. "You're seeing ripples in the sheet that is being seen edge-on, so it looks like twisted ribbons of light," said William Blair of the Johns Hopkins University, Baltimore, Maryland. "Those wiggles arise as the shock wave encounters more or less dense material in the interstellar medium." The time-lapse movie over nearly two decades shows the filaments moving against the background stars but keeping their shape.

"When we pointed Hubble at the Cygnus Loop we knew that this was the leading edge of a shock front, which we wanted to study. When we got the initial picture and saw this incredible, delicate ribbon of light, well, that was a bonus. We didn't know it was going to resolve that kind of structure," said Blair.

Blair explained that the shock is moving outward from the explosion site and then it starts to encounter the interstellar medium, the tenuous regions of gas and dust in interstellar space. This is a very transitory phase in the

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expansion of the supernova bubble where invisible neutral hydrogen is heated to 1 million degrees Fahrenheit or more by the shock wave's passage. The gas then begins to glow as electrons are excited to higher energy states and emit photons as they cascade back to low energy states. Further behind the shock front, ionized oxygen atoms begin to cool, emitting a characteristic glow shown in blue.

The Cygnus Loop was discovered in 1784 by William Herschel, using a simple 18-inch reflecting telescope. He could have never imagined that a little over two centuries later we'd have a telescope powerful enough to zoom in on a very tiny slice of the nebula for this spectacular view.

The Hubble Space Telescope is a project of international cooperation between NASA and ESA. 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.

About This Release - Credits :NASA, ESA, Ravi Sankrit (STScI)



The **Atlanta Astronomy Club, Inc.**, one of the South's largest and oldest astronomical society, meets at **3:00 P.M.** on the 3rd 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

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Woodruff Observ. Coordinator: Sharon Carruthers
Treasurer@AtlantaAstronomy.org
AAC Webmaster: Daniel Herron

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

AAC Events are listed in BOLD

- Oct 8th, Sunday: **The Peach State Star Gaze opens at 12PM.**
- Oct 10th, Tuesday: Moon near Venus morning.
- Oct 14th, Saturday: New Moon. Partial Solar Eclipse: Begins at 11:46AM, Mid (~49% disk covered) at 1:15PM, Ends 2:47PM.
- Oct 15th, Sunday: **The Peach State Star Gaze closes at 12PM.**
- Oct 20th, Friday: Orionids Meteor Shower peaks tonight. Mercury Superior Conjunction.
- Oct 21st, Saturday: Moon First Quarter.
- Oct 23rd, Monday: Venus at greatest western elongation.
- Oct 28th, Saturday: Full Moon. Moon near Jupiter.
- Nov 3rd, Friday: Jupiter at Opposition.
- Nov 5th, Sunday: Moon Last Quarter. Daylight Saving Time ends 2:00AM.
- Nov 9th, Thursday: Moon near Venus morning.
- Nov 11th, Saturday: CEA Chapter Meeting and Observing 3:30PM.
- Nov 13th, Monday: New Moon. Uranus at Opposition.
- Nov 14th, Tuesday: **AAC General Meeting at the Sandy Springs Library 6:30PM.**
- Nov 17th, Friday: Leonids Meteor Shower peaks tonight.
- Nov 18th, Saturday: Mars conjunction with Sun.
- Nov 20th, Monday: Moon First Quarter.
- Nov 25th, Saturday: Moon near Jupiter evening.
- Nov 27th, Monday: Full Moon.

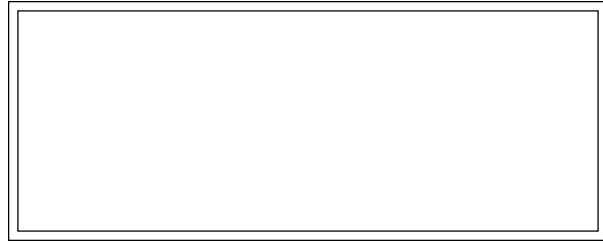
For more event listings and updates see the calendar at www.atlantaastronomy.org

Atlanta Astronomy Club Listserv

Because of the shutdown of Yahoo Groups, the Atlanta Astronomy Club Mailing List has been moved to IO Groups. You can visit the group, start reading messages and posting them here: <https://groups.io/g/AtlantaAstronomyClub>.

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 Friday, October 27. Submissions received after the deadline will go in the following issue.**



FIRST CLASS



www.betagg.com



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www.atlantaastronomy.org
On Twitter at <http://twitter.com/atlastro>

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

Newsletter of The Atlanta Astronomy Club, Inc.

The Focal Point

