

The Focal Point

The Atlanta Astronomy Club
Established 1947
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Editor: Tom Faber

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September General Meeting

Important Note: Meeting Location Change!

Join us for the September meeting of the Atlanta Astronomy Club on Friday, September 21st at 8PM. Refreshments will be provided starting around 7:30PM. We will NOT meet at our usual location in the Hitson Center. This time we will meet across Mt. Vernon Hwy from the Hitson Center at the Sandy Springs United Methodist Church Fellowship Hall (see map on pg 7).

The Program:

The September program will be about the latest developments in the search for the elusive Higgs Boson. This elusive particle is supposed to be responsible for giving matter, as we know it, the property of mass. If current theories are correct the Higgs Boson is a very important, but missing, key to continued research. If it's not found theoretical physics will have to go back for a major revision of current theories.

Speaker Bio:

Marc Merlin is an Atlanta native who studied physics first at Emory, then at the University of Pennsylvania earning a master's degree in 1981. His graduate student activities included working at Fermi lab on experimental neutrino physics and developing real time data acquisition and analysis systems for use in condensed matter physics. After a brief stint at the Rand Corp. in Santa Monica, Marc returned to Atlanta to pursue a career in software development and consulting. Marc has been involved with the Atlanta Science Tavern since 2008 and is now its full time director.

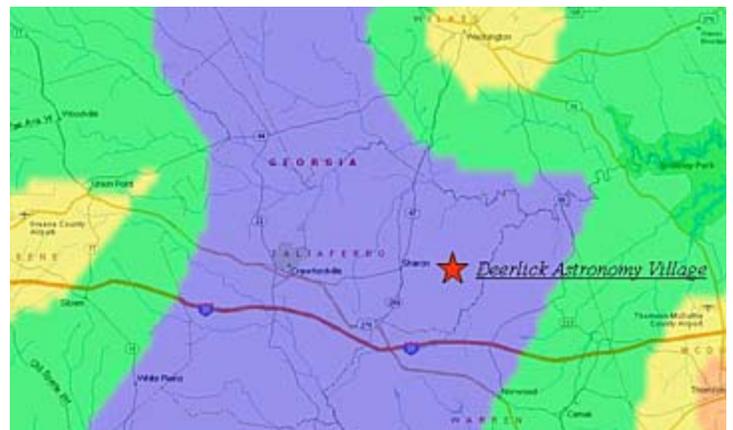
Upcoming AAC Meetings:

Our meetings will usually be held on the 3rd Friday of the month. Future meeting dates for 2012 are Oct 19, and Nov 16. The date for December Christmas potluck is Saturday the 8th. Meetings will be at the Parlor Room of the Hitson Center unless noted otherwise.

The 2012 Peach State Star Gaze!

Late News!! Our keynote speaker will be world-class imager Damian Peach! Damian will present talks on Friday and Saturday.

The next Peach State Star Gaze is coming soon! The AAC's annual star party will again be held at the Deerlick Astronomy Village near Sharon, GA, and run from Sunday, October 7 to Sunday, October 14 (new moon is October 15). DAV has an 11-acre field that has room for RVs, campers, and tents. Limited power is available on the field. Full rest rooms with showers are available along with a 40' x 40' pavilion and gas BBQ grill. This year Micki's Kitchen returns to provide us with coffee, refreshments and meals (and brownies!). The Atlanta Astronomy Club's 24" telescope will be set up on the field and AAC's clubhouse will be open. We will have speakers, workshops, and vendors. Please visit us at AtlantaAstronomy.org/pssg/ for details and registration.



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.



The AAC field at the DAV during the 2010 PSSG - Photo by Tom Faber.

August Meeting Minutes

By Kat Sarbell for Pixie Burner. Photos by Tom Faber

There were about 30 members and guests at the August meeting of the AAC held on August 17. Sharon provided snacks and drinks. Our guest speaker was Don German. He is the NASA/JPL Solar System Ambassador from Tellus Science Museum. Don talked about the Curiosity Rover landing on Mars less than 2 weeks earlier and some of its early surface activities (photo below). Don also gave a short talk (bottom photo) about recent findings on the upcoming collision of the Milky Way with the Andromeda Galaxy (upcoming in a few billion years!).

Mark Banks made a new projection screen for the meetings using PVC pipe and a large sheet. Peter Macumber gave a report on the upcoming Peach State Star Gaze (photo right), and Daniel Herron reported that volunteers are needed for school events. The next Board of Directors Meeting will be held on Sunday, September 23 at 3PM. The location is TBA.

After the meeting a number of us did a little planetary observing from the Hitson Center parking lot (photo right bottom) before going to the nearby Mellow Mushroom for food, drink, and socializing.



The Next AAC Board Meeting

The next Board meeting of the Atlanta Astronomy Club is scheduled for Sunday, September 23rd at 3PM. Location of the meeting is TBA. Contact President Richard Jakiel or Board Chair Daniel Herron for more information about the meeting agenda.

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>

Charlie Elliott Chapter Meeting Minutes

by Marie Lott, CE Chapter Recording Secretary

The August 18th meeting of the Charlie Elliott Chapter of the Atlanta Astronomy Club was held in CEWC Conference Center, Building "B", in Mansfield, GA at 5 PM with twenty people in attendance.

Outreach coordinator Theo Ramakers reported that the chapter's astronomy outreach has been quite active this summer and several events have already been booked for the new school year. Members are needed to help out when able. Outreach dates are on the chapter calendar at <http://ceastronomy.org>.

Club member Steve Siedentop showed off his most recent project, the recent hypertuning of his LX75 mount by Ed Thomas at Deep Space Products. He also had a belt driven conversion kit installed to eliminate backlash. Steve also explained his set up which allows the Sky Safari app to control his mount via WiFi.

Theo Ramakers showed a movie he made from the NASA feed of the Curiosity launch and its landing on Mars. He also gave a demo of the latest toolkit from the Night Sky Network, "Our Magnetic Sun" and led some fun activities from the kit (see photo). These activities will be used at student outreach events.



Demo of interactive student activity from the NSN solar toolkit. Photo by Larry Owens

Observing supervisor John Towne gave the observing report "What's Up", a highlight of current sun, moon and planet rise & set times, and observing targets for the coming month.

Current Observing Targets

Object	Type	Mag	Constellation
NGC 6231	Cluster w/ Nebulosity	2.6	Scorpius
M6 (Butterfly Cluster)	Open Cluster	4.2	Scorpius
M7	Open Cluster	3.3	Scorpius
M8 (Lagoon)	Nebula	5.8	Sagittarius
M20 (Trifid)	Nebula	6.3	Sagittarius
M22	Globular Cluster	5.1	Sagittarius
M25	Open Cluster	4.6	Sagittarius
M16 (Eagle)	Nebula	6	Serpens
M11 (Wild Duck)	Open Cluster	5.8	Scutum
NGC 869 /884	Double Cluster	4	Perseus
M31	Galaxy	3.5	Andromeda
NGC 281	Cluster w/ Nebulosity	7	Cassiopeia
IC1396	Cluster w/ Nebulosity	3.5	Cepheus

Object	Type	Mag	Constellation
NGC 7160	Open Cluster	6.1	Cepheus
M39	Open Cluster	4.6	Cygnus
Challenge object: NGC 6905	Blue Flash Nebula	12	Delphinus

The next meeting of the chapter will feature "Dinner and a Movie", our quarterly potluck on Saturday, September 15, 2012 at 5 PM. We'll be showing a movie during dinner - the science fiction classic "Forbidden Planet". Our movie will be followed by a short presentation "This Month's Sky" by John Towne and observing on the field, weather permitting.

CE Chapter Outreach

By Theo Ramakers, Outreach Coordinator

<http://ceastronomy.org/tramakers>

Charlie Elliott's chapter of the AAC has ramped up again for a new school year with outreach.

For the schools the summer vacation has come to an end and with that, the requests for outreach have started to come in again. We had requests for 4 events for August. Two star parties, one at the Middle Ridge Elementary School in Covington. A second one for the same school for in classroom presentations, which included a presentation about Curiosity and a flight through the solar system visiting several planets and their moons as well as solar observing. East Newton Elementary School came for the second time this year to Charlie Elliott to see the stars and visible planets from a deep sky site. The coordinating teacher from this school is real excited about our outreach efforts and we were able to get 9 chapter members to help the students see what they came for. In classroom presentations combined with solar observing completed the second event for this school.



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ESO Telescopes Find Most Stellar Heavyweights Don't Live Alone

News Release Number: STScI-2012-33, July 26, 2012

A new study using the European Southern Observatory's (ESO) Very Large Telescope (VLT) has shown that most very bright high-mass stars, which drive the evolution of galaxies, do not live alone. Almost three-quarters of these stars are found to have a close companion star, far more than previously thought. Surprisingly most of these pairs are also experiencing disruptive interactions, such as mass transfer from one star to the other, and about one-third are even expected to ultimately merge to form a single star. The results are published in the July 27 issue of the journal *Science*.

The universe is a diverse place, and many stars are quite unlike the Sun. An international team has used the VLT to study what are known as O-type stars, which have very high temperature, mass, and brightness. These stars have short and violent lives and play a key role in the evolution of galaxies. They are also linked to extreme phenomena such as gamma-ray bursts and "vampire stars," where a smaller companion star sucks matter off the surface of its larger neighbor.

"These stars are absolute behemoths," said Hugues Sana (University of Amsterdam, The Netherlands), the lead author of the study. "They have 15 or more times the mass of our Sun and can be up to a million times brighter. These stars are so hot that they shine with a brilliant blue-white light and have surface temperatures over 54,000 degrees Fahrenheit."

The astronomers studied a sample of 71 O-type single stars and stars in pairs (binaries) in six nearby young star clusters in the Milky Way. Most of the observations in their study were obtained using ESO telescopes, including the VLT. By analyzing the light coming from these targets in greater detail than before, the team discovered that 75 percent of all O-type stars exist inside binary systems, a higher proportion than previously thought, and the first precise determination of this number. More importantly, though, they found that the proportion of these pairs that are close enough to interact (through stellar mergers or transfer of mass by so-called vampire stars) is far higher than anyone had thought, which has profound implications for our understanding of galaxy evolution.

O-type stars make up just a fraction of a percent of the stars in the universe, but the violent phenomena associated with them mean they have a disproportionate effect on their surroundings. The winds and shocks coming from these stars can both trigger and stop star formation, their radiation powers the glow of bright nebulae, their supernovae enrich galaxies with the heavy elements crucial for life, and they are associated with gamma-ray bursts, which are among the most energetic phenomena in the universe. O-type stars are therefore implicated in many of the mechanisms that drive the evolution of galaxies.

"The life of a star is greatly affected if it exists alongside another star," said Selma de Mink of the Space Telescope Science Institute, in Baltimore, Md., a co-author of the study. "If two stars orbit very close to each other they may eventually merge. But even if they don't, one star will often pull matter off the surface of its neighbor."

Mergers between stars, which the team estimates will be the ultimate fate of around 20 to 30 percent of O-type stars, are violent events. But even the comparatively gentle scenario of vampire stars, which accounts for a further 40 to 50 percent of cases, has profound effects on how these stars evolve.

Until now, astronomers mostly considered that closely orbiting massive binary stars were the exception, something that was only needed to explain exotic phenomena such as X-ray binaries, double pulsars, and black hole binaries. The new study shows that to properly interpret the universe,



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this simplification cannot be made: these heavyweight double stars are not just common, their lives are fundamentally different from those of single stars.

For instance, in the case of vampire stars, the smaller, lower-mass star is rejuvenated as it sucks the fresh hydrogen from its companion. Its mass will increase substantially and it will outlive its companion, surviving much longer than a single star of the same mass. The victim star, meanwhile, is stripped of its envelope before it has a chance to become a luminous red supergiant. Instead, its hot, blue core is exposed. As a result, the stellar population of a distant galaxy may appear to be much younger than it really is: both the rejuvenated vampire stars, and the diminished victim stars become hotter, and bluer in color, mimicking the appearance of younger stars. Knowing the true proportion of interacting high-mass binary stars is therefore crucial to correctly characterize these faraway galaxies. “The only information astronomers have on distant galaxies is from the light that reaches our telescopes. Without making assumptions about what is responsible for this light we cannot draw conclusions about the galaxy, such as how massive or how young it is. This study shows that the frequent assumption that most stars are single can lead to the wrong conclusions,” concluded Sana.

Understanding how big these effects are, and how much this new perspective will change our view of galactic evolution, will need further work. Modeling binary stars is complicated, so it will take time before all these considerations are included in models of galaxy formation.

The science team is composed of H. Sana (Amsterdam University, The Netherlands), S.E. de Mink (Space Telescope Science Institute, Baltimore, Md.; Johns Hopkins University, Baltimore, Md.), A. de Koter (Amsterdam University; Utrecht University, The Netherlands), N. Langer (University of Bonn, Germany), C.J. Evans (UK Astronomy Technology Center, Edinburgh, UK), M. Gieles (University of Cambridge, UK), E. Gosset (Liege University, Belgium), R.G. Izzard (University of Bonn, Germany), J.-B. Le Bouquin (Université Joseph Fourier, Grenoble, France) and F.R.N. Schneider (University of Bonn, Germany).

For additional images, video, and more information, visit: <http://www.eso.org/public/news/eso1230>

(Illustration Right) New research using data from European Southern Observatory telescopes, including the Very Large Telescope, has revealed that the hottest and brightest stars, known as O stars, are often found in close pairs. Many of these binaries transfer mass from one star to another, a kind of stellar vampirism depicted in this artist's impression. Illustration Credit: ESA, NASA, L. Calçada (ESO), and S.E. de Mink (STScI). Science Credit: ESA, NASA, H. Sana (Amsterdam University), and S.E. de Mink (STScI).

Hubble's Photo Contest Selects Winners

The European Space Agency (ESA) has announced the winners of an international public contest called Hubble's Hidden Treasures.

Budding amateur astronomers were invited to create beautiful color astronomical pictures from over 700,000 available images of stars, nebulae, and galaxies in the Hubble Space Telescope data archive. The vast amount of data available from Hubble means that there are at least hundreds of potentially beautiful images that have never gone public. The images Hubble takes through various color filters need to be combined through image processing to render an aesthetic and scientifically accurate view.

ESA received nearly 3,000 photo submissions from individuals who performed the color compositing and other photo enhancement techniques. Twenty prizes were awarded in several categories. Roughly half of the contestants used the Space Telescope Science Institute's Hubble Legacy Archive, which provides image processing tools for the public.

<http://www.spacetelescope.org/hidden treasures> Credit: ESA/Hubble (European Southern Observatory)



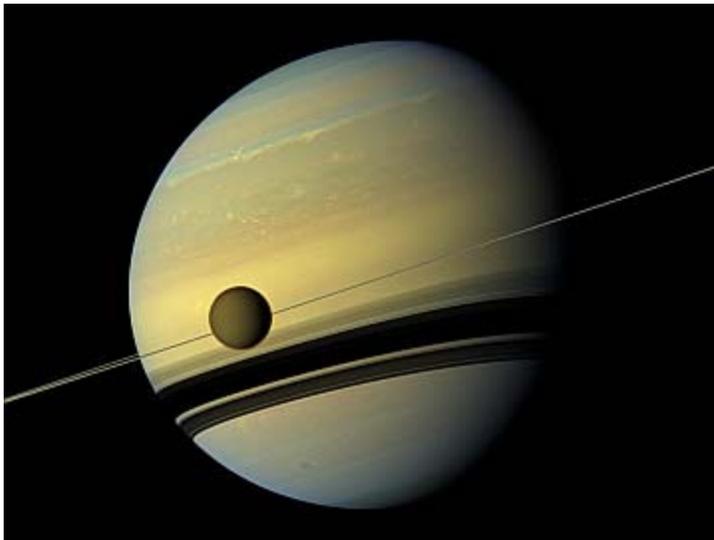
Saturn and Its Largest Moon Reflect Their True Colors

NASA/JPL News Release - August 29, 2012

Posing for portraits for NASA's Cassini spacecraft, Saturn and its largest moon, Titan, show spectacular colors in a quartet of images being released today. One image captures the changing hues of Saturn's northern and southern hemispheres as they pass from one season to the next.

The images can be found at <http://www.nasa.gov/cassini>, <http://saturn.jpl.nasa.gov> and <http://ciclops.org>.

A wide-angle view in today's package captures Titan passing in front of Saturn, as well as the planet's changing colors. Upon Cassini's arrival at Saturn eight years ago, Saturn's northern winter hemisphere was an azure blue. Now that winter is encroaching on the planet's southern hemisphere and summer on the north, the color scheme is reversing: blue is tinting the southern atmosphere and is fading from the north.



The other three images depict the newly discovered south polar vortex in the atmosphere of Titan, reported recently by Cassini scientists. Cassini's visible-light cameras have seen a concentration of yellowish haze in the detached haze layer at the south pole of Titan since at least March 27. Cassini's visual and infrared mapping spectrometer spotted the massing of clouds around the south pole as early as May 22 in infrared wavelengths. After a June 27 flyby of the moon, Cassini released a dramatic image and movie showing the vortex rotating faster than the moon's rotation period. The four images being released today were acquired in May, June and July of 2012.

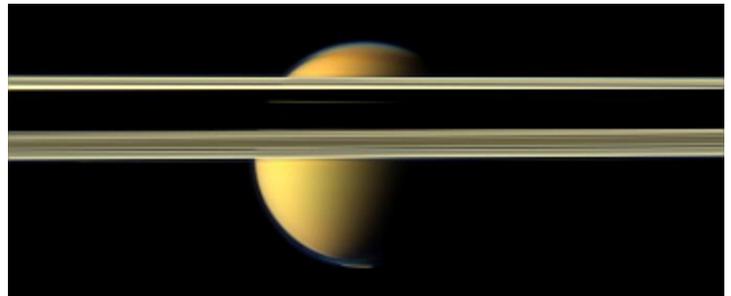
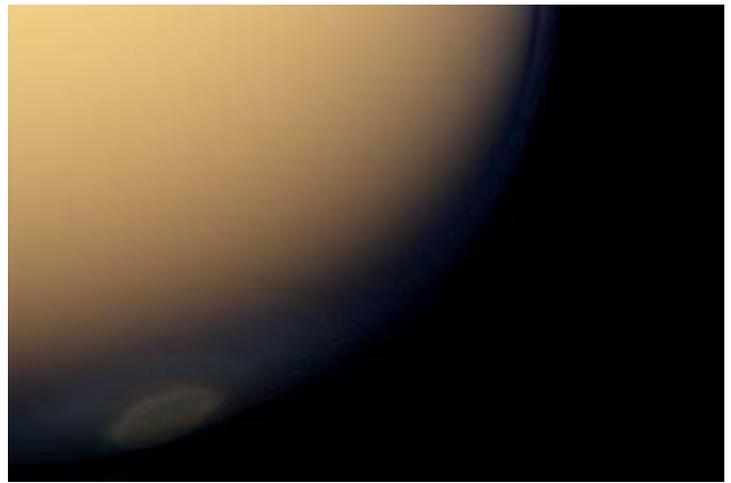
Some of these views, such as those of the polar vortex, are only possible because Cassini's newly inclined -- or tilted -- orbits allow more direct viewing of the polar regions of Saturn and its moons.

Scientists are looking forward to seeing more of the same -- new phenomena like Titan's south polar vortex and changes wrought by the passage of time and seasons -- during the remainder of Cassini's mission.

"Cassini has been in orbit now for the last eight years, and despite the fact that we can't know exactly what the next five years will show us, we can be certain that whatever it is will be wondrous," said Carolyn Porco, imaging team lead based at the Space Science Institute in Boulder, Colo.

Launched in 1997, Cassini went into orbit around Saturn on July 1, 2004. It is in its second mission extension, known as the Solstice Mission, and one of its main goals is to analyze seasonal changes in the Saturn system.

"It is so fantastic to experience, through the instruments of Cassini, seasonal changes in the Saturn system," said Amanda Hendrix, deputy

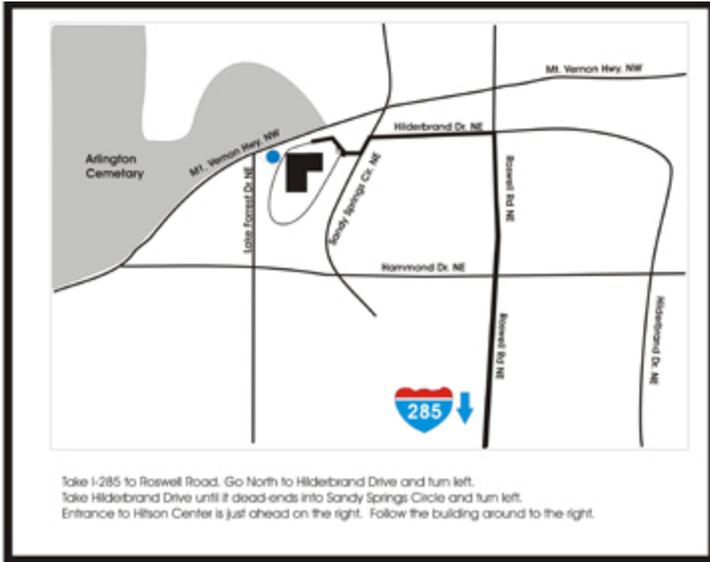


project scientist, based at NASA's Jet Propulsion Laboratory in Pasadena, Calif. "Some of the changes we see in the data are completely unexpected, while some occur like clockwork on a seasonal timescale. It's an exciting time to be at Saturn."

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. JPL, a division of the California Institute of Technology in Pasadena, manages the Cassini-Huygens mission for NASA's Science Mission Directorate, Washington. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The imaging team is based at the Space Science Institute in Boulder, Colo.

The Focal Point Archives

The AAC began publishing the *Focal Point* as a PDF online in June 1998. Since then every issue has, and still is, available for download from the club's web page. Recently that archive has expanded. Sharon Carruthers has scanned 61 issues of the AAC's newsletter (then called *The Atlanta Astronomers' Report*) from 1948 to 1977. Although many issues from this period are still missing these provide a valuable record of the club's early years. In addition I (Tom Faber) came across 19 issues of the *Focal Point* from the years 1995-1998 that I scanned to make available on the club's web site. Again not every issue during this period is available but it is another step in maintaining and making available to all a record of the AAC's history. Our web master Daniel Herron has uploaded these to the web site as PDF's for download. Just visit www.atlantaastronomy.org and click on the "Focal Point Archives" link on the right side of the page. If you have any of the missing issues of the club's newsletter that you would like to scan and submit to Daniel as a PDF please do!



The AAC's meeting location at the Hitson Center in Sandy Springs.

The **Atlanta Astronomy Club, Inc.**, one of the South's largest and oldest astronomical society, meets at **8:00 P.M.** on the **3rd Friday of each month** in the Parlor Room - Hitson Center in Sandy Springs, or occasionally at other locations or times. Membership fees are **\$30 (\$42)** for a **family or single person membership**. College **Students membership fee** is **\$15 (\$27)**. These fees are for a one year membership (\$12 per year extra charge to receive a printed *Focal Point* by mail).

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: Richard Jakiel President@AtlantaAstronomy.org
Program Chair: Mark Banks Programs@AtlantaAstronomy.org
Observing Chair/BoD Chair: Daniel Herron
Observing@AtlantaAstronomy.org
Corresponding Secretary: Tom Faber
Focalpoint@AtlantaAstronomy.org
Treasurer: Sharon Carruthers Treasurer@AtlantaAstronomy.org
Recording Secretary: Pixie Bruner
Secretary@AtlantaAstronomy.org
Board Chair: Daniel Herron, Contact info TBA
Board: Brigitte Fessele, Contact info TBA
Board: David Lumpkin, Contact info TBA
Board: Theo Ramakers 770-464-3777
webmaster@CEastronomy.org
ALCor: Open - President@AtlantaAstronomy.org
Elliott Chapter Director: Larry Owens director@ceastronomy.org
Elliott Observing Supervisor: John Towne
observing@ceastronomy.org
Elliott Recording Secretary: Marie Lott mtlott@comcast.net
Elliott Coordinator: Alesia Rast Alesia_Rast@mail.dnr.state.ga.us
Elliott Webmaster: Theo Ramakers 770-464-3777
webmaster@CEastronomy.org
Elliott Outreach Coordinator: Theo Ramakers 770-464-3777
outreach@ceastronomy.org
Georgia Astronomy in State Parks: Sharon Carruthers
Treasurer@AtlantaAstronomy.org
PSSG Chairman: Peter Macumber pmacumber@nightsky.org
PSSG Co-Chair: Joanne Cirincione
starrynights@AtlantaAstronomy.org
Sidewalk Astronomy: Brad Isley
sidewalkastronomy@AtlantaAstronomy.org
Light Trespass: Open - Contact Mark Banks if you would like to volunteer for this position
Woodruff Observ. Coordinator: Sharon Carruthers
Treasurer@AtlantaAstronomy.org
AAC Webmaster: Daniel Herron, Contact info TBA

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

AAC Events are listed in BOLD

- Sept 8th, Saturday: Moon Last Quarter near Jupiter in morning.
- Sept 12th, Wednesday: Moon near Venus in morning
- Sept 15th, Saturday: **CE Chapter Meeting, 5PM. DSO at location TBA.** New Moon.
- Sept 21st, Friday: **AAC Meeting, 8PM.**
- Sept 22nd, Saturday: Moon First Quarter.
- Sept 23rd, Sunday: **Board of Directors Meeting, 3 PM. Location TBA.**
- Sept 26th, Wednesday: **October Focal Point Deadline**
- Sept 29th, Saturday: Full Moon.
- Oct 3th, Wednesday: Venus near Regulus.

Oct 7th - 14th: Peach State Star Gaze!!

- Oct 7th, Sunday: Draconid Meteors.
- Oct 8th, Monday: Moon Last Quarter.
- Oct 12th, Friday: Moon near Venus morning.
- Oct 15th, Monday: New Moon.
- Oct 19th, Friday: **AAC Meeting, 8PM.**
- Oct 20th, Saturday: **CE Chapter Meeting.**
- Oct 21st, Sunday: Moon First Quarter. Orionids Meteors.
- Oct 29th, Monday: Full Moon.
- Nov 6th, Tuesday: Moon Last Quarter.
- Nov 13th, Tuesday: New Moon.
- Nov 16th, Friday: **AAC Meeting, 8PM.**
- Nov 17th, Saturday: **CE Chapter Meeting. DSO at location TBA.**
- Nov 20th, Tuesday: Full Moon.

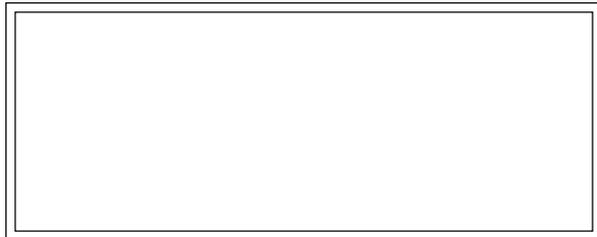
For more event listings see the calendar at : www.atlantaastronomy.org

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 . This list is owned by Lemmy Abbey.

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 but Word documents or PDF's are okay. You can submit articles anytime up to the deadline. **The deadline for October is Wednesday, September 26th. Submissions after the deadline will go in the following issue.**



FIRST CLASS



www.beclage.com



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

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

www.atlantaastronomy.org

Atlanta, GA 30358-1155

P.O. Box 76155

Atlanta Astronomy Club

Alpharetta, GA 30022

2206 Treeridge Parkway

Tom Faber

FROM:

Newsletter of The Atlanta Astronomy Club, Inc.



The Focal Point