The Focal Point

The Atlanta Astronomy Club
Established 1947
January 2015

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Editor: Tom Faber

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January General Meeting

Please join us for the next meeting of the Atlanta Astronomy Club, to be held on Saturday, January 17th 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. The General Meeting will start at 3PM. Our featured speaker will be Anita Westlake who will present a talk about meteorites.

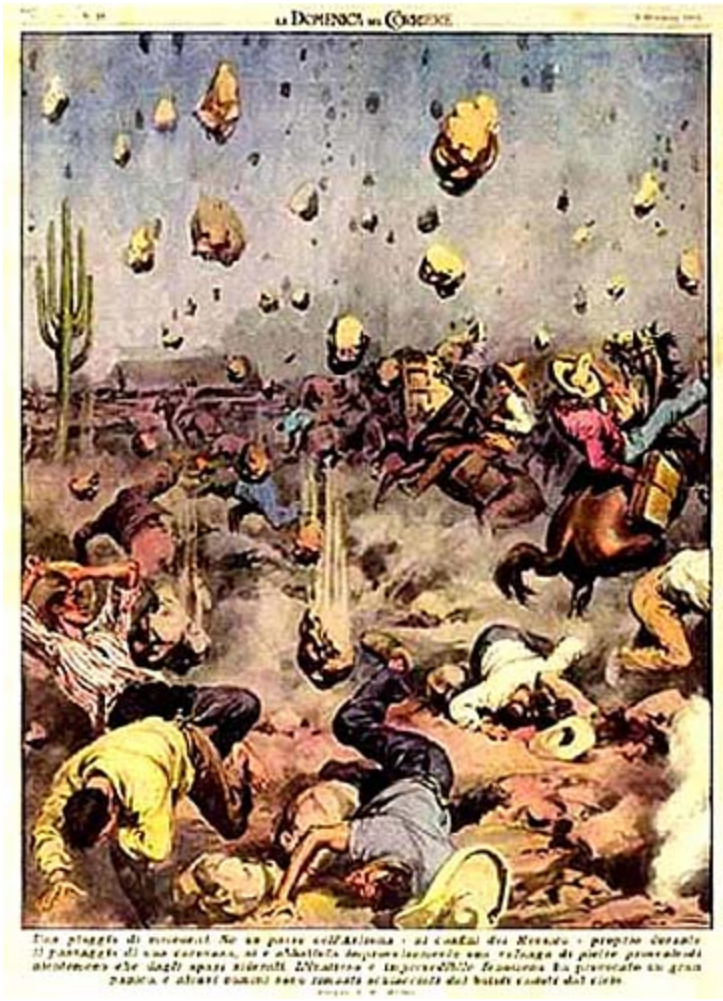
After the talk, upcoming club events and programs will be announced by the club officers.

Speaker Biography

Anita D. Westlake has been studying and collecting meteorites for over 10 years. Her fascination began when Jerry Armstrong showed her an Allende meteorite and told her it was older than our solar system. She bought that specimen and has been collecting ever since.

On a recent trip to Tucson for their annual gem and mineral show, Anita was the invited guest speaker at the Michael Blood Meteorite Auction. She has written for Meteorite magazine and has enjoyed rubbing elbows with Geoffrey Notkin and Steve Arnold of the "Meteorite Men" TV series at their annual "Birthday Bash".

Anita worked for the Tellus Science Museum in Cartersville, Ga. and helped the public with mineral and meteorite identification.



The Talk

Meteorites fall to Earth every day but most are never recovered. Sometimes they land in interesting places or hit something man-made, causing damage and creating stories. Anita Westlake, co-founder and first President of the Meteorite Association of Georgia (MAG) will cover types of meteorites, how to tell the real ones from the "meteorwrongs". You will learn of people, places and things that were hit as well as their values and best collecting practices. Specimens will be available to pass around and purchase. Bring your sense of humor; all science isn't dry and dusty.

Future Meetings will be on the 2nd Saturday

Starting in February the AAC meetings will be on the second Saturday of each month, still at the Fernbank Science Center and at 3PM. The next few meeting dates are: Feb 14, Mar 14, Apr 11, May 9.

December AAC Meeting Report

Meeting photos by Tom Faber

The AAC held its annual Holiday banquet / covered dish dinner & meeting on Saturday December 13 in the atrium of the Math and Science building Emory University. About 50 members and guests were present. The AAC provided turkey, ham, and beverages and the attendees brought many tasty appetizers, side dishes, and desserts. After the dinner we moved to the planetarium to hear a very interesting and informative talk about Galaxy Interactions, Black Holes, & Quasars by Dr. Erin Wells Bonning of the Emory Department of Physics. Dr. Bonning showed a number of images of interacting galaxies, showed a computer simulation of two galaxies colliding, and talked about how galaxies evolve by mergers. She also talked about the central black holes of galaxies and gave a comparison of the size of a galaxy like the Milky Way to the size of its central black hole. The comparison was if the galaxy is the size of I-285, the perimeter highway, the central black hole would be a bacteria on a doorknob in a building in downtown Atlanta. After her talk Dr. Bonning answered many questions. Then club officers gave announcements about upcoming AAC events and activities then the meeting was adjourned.

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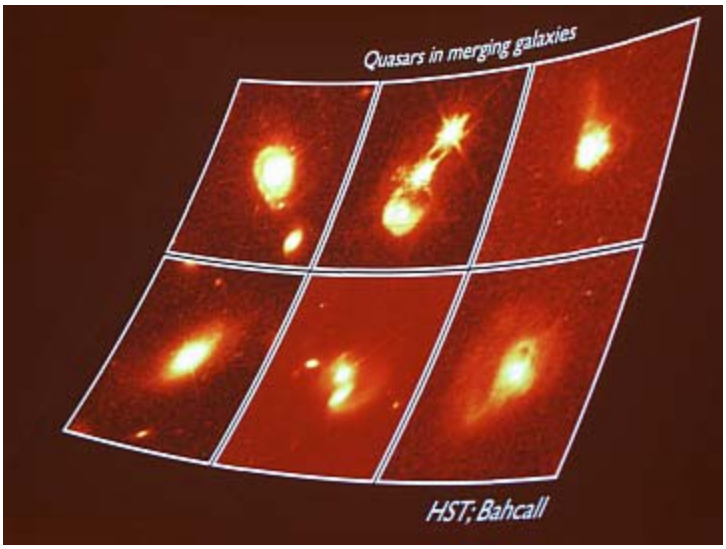

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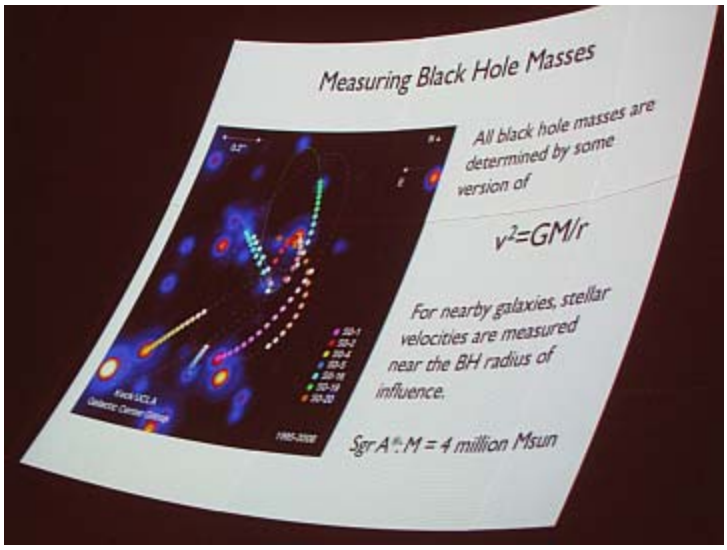

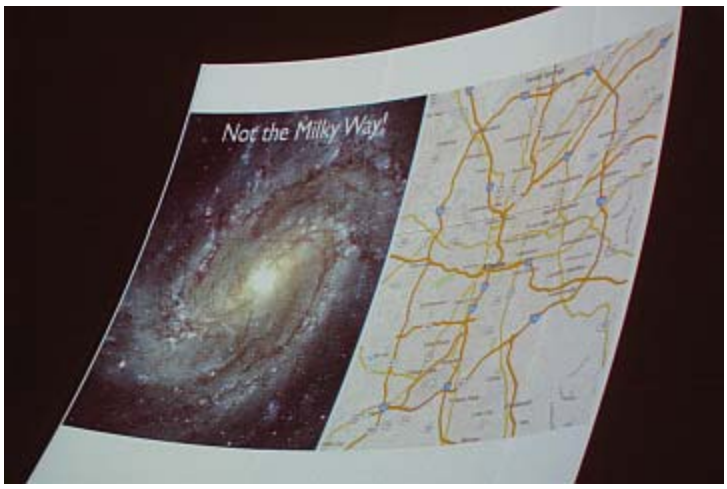

The Next Charlie Elliott Meeting

Join us for our next meeting at 3:30 PM, Saturday, January 17th at the Charlie Elliott Banquet Hall (next to the Conference Center). Questions? Contact one of our officers.

Meeting Agenda

"I'll be back." (…to talk about stellar formation…)

Elgin Leary returns for our January meeting to talk to us about stellar formation, where our own star fits in relation to the rest of the universe, and the problems scientists are tackling to measure and observe stellar formation in our own corner of the galaxy. Elgin brings knowledge and experience from backgrounds in both physics and astronomy and is currently teaching high school physics at Grayson High School in Grayson, Georgia. Elgin is also organizing the Grayson High School Astronomy Club for twenty or so bright and motivated high school students. Join us on January 17th, 2015 at 3:30 p.m. in the Charlie Elliott Banquet Hall for an interesting and engaging discussion. You can be sure to walk away having learned something new!

What's Up! - Charlie Elliott Astronomy Observing Supervisor John Towne will be giving a short presentation of what you can expect to see in the sky this month with binoculars and small telescopes as well as the monthly Charlie Elliott Observing Challenge. At the meeting, remember to ask John for the target list and SkyMap! The target list and presentation from the last meeting are available for download at the CE Chapter web page.

Sunset Time Alert - While we would love for everyone to stay for the entire meeting, we realize that some folks prefer to leave a bit earlier so as to set up their equipment at the observing field before dark. If the meeting runs longer than planned, a "Sunset Time Alert" will be announced.

"Observing after the Meeting" - All are invited to Jon Wood Astronomy Field immediately after the meeting (weather-permitting). You don't have to be a member to attend the meeting or join us on Jon Wood Astronomy Field with your telescope (or just your eyeballs). Note: The security gate at the entrance to the main road leading up to the observing field closes at 10:00 p.m. You'll be able to leave at any time, but you won't be able to get in after 10:00 p.m. You will, however, be able to park near the gate and walk a few hundred feet to the observing field after 10:00 p.m.

Place: Jon Wood Astronomy Field at Charlie Elliott Wildlife Center.

From the President's Desk

From the President's Desk:

We have had a great year in 2014. This has been our first full year meeting at Fernbank that has proven to be a great central location. We have had numerous well attended public stargaze events. The Peach State Star Gaze was well attended and had great viewing conditions all week. We now need to focus our attention on our upcoming year and activities.

As always volunteers are what makes the club work. We have a number of projects and opportunities for everyone to get involved with.

*We need to rebuild the Villa Rica roll of roof supports as soon as we can get all the materials.

*We need to paint the clubhouse at Villa Rica as soon as the weather warms up in the spring.

*Later this year we will need volunteers to work with the Inner City Youth program as mentors for the students. This will be done at Fernbank.

*I am currently working with several high school students as their mentor / advisor on their Senior Science Projects. This is part of the STEM Program. We may need more volunteers for this program.

*Elections will be in May and we always encourage anyone to run for any office.

*We now have a Radio Telescope. Anyone interested in using it for the new Astronomical League Radio observing program should contact Jamie Anderson, our A.L. Representative.

*Please keep an eye on our calendar and volunteer for any public stargaze events that you can do.

*Our Peach State Stargaze is held every year in October. We always need more volunteers to help out with all the preparatory work, so please get involved.

* We always need your input for programs and events so please let us know.

Mark Banks, AAC President

Bradley Observatory Open House Series 2014-2015

Open House Lecture Series for the 2014-2015 school year. The lectures are generally on the second Friday of each month (no open house in January) and run from 8:00PM to 9:00PM. They are followed by viewing with the Observatory's 30-inch Beck Telescope and smaller telescopes (weather permitting). For updates or possible changes to the schedule of lectures see: http://www.agnesscott.edu/bradleyobservatory/open-house-series.html

February 13: Open House Lecture, **March 27:** Spring Equinox Concert, **April 17:** Open House Lecture Speaker: Adam Meier (Georgia Tech).

Tim Nix - Owner of Camera Bug

by Dan Llewellyn

It is with great sadness that I have to announce the owner of Camera Bug in Atlanta GA, Tim Nix, passed away sometime Monday night, Tuesday morning, December 22-23, 2014.

Camera Bug was one of the last telescope stores in the southeast. Tim originally worked for the owner, Larry, in the 1980's-1990's. After Larry passed, Tim bought the store. It had always been in the Sage Hill Shopping Center, in later years moving around to the side. As the camera business disappeared due to digital imaging replacing film, Tim became essentially a telescope store.

Tim was a friendly competitor when I owned Telescope Atlanta, which I closed in 2008. Between Astro Imaging and trying to stay retired, I ended up working for him part time 2 days a week, starting in 2012. We had a lot of fun. Tim had a big heart, cared about his customers, and will be sorely missed. RIP my friend.

AAC Club Notes

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 *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!

Beginner's Guide to Astronomy

New to astronomy and have a few questions on where to start? Check out our new Beginners Guide to Astronomy at: http://atlantaastronomy.org/?page_id=778

Check back frequently as we add more information and tips.

Jupiter by Dan Llewellyn

I over sampled more than I usually do. It paid some unexpected dividends. C14, Zeiss 2.6x Barlow, Blackfly GiG E w/sony 104 cmos. One shot color.

Hubble Goes High Def to Revisit the Iconic 'Pillars of Creation'

NASA/STScI News Release - January 5, 2015

Although NASA's Hubble Space Telescope has taken many breathtaking images of the universe, one snapshot stands out from the rest: the iconic view of the so-called "Pillars of Creation." The jaw-dropping photo, taken in 1995, revealed never-before-seen details of three giant columns of cold gas bathed in the scorching ultraviolet light from a cluster of young, massive stars in a small region of the Eagle Nebula, or M16.

Though such butte-like features are common in star-forming regions, the M16 structures are by far the most photogenic and evocative. The Hubble image is so popular that it has appeared in movies and television shows, on tee-shirts and pillows, and even on a postage stamp.

And now, in celebration of its 25th anniversary, Hubble has revisited the famous pillars, providing astronomers with a sharper and wider view. As a bonus, the pillars have been photographed in near-infrared light, as well as visible light. The infrared view transforms the pillars into eerie, wispy silhouettes seen against a background of myriad stars. That's because the infrared light penetrates much of the gas and dust, except for the densest regions of the pillars. Newborn stars can be seen hidden away inside the pillars. The new images are being unveiled at the American Astronomical Society meeting in Seattle, Washington.

Although the original image was dubbed the Pillars of Creation, the new image hints that they are also pillars of destruction. "I'm impressed by how transitory these structures are. They are actively being ablated away before our very eyes. The ghostly bluish haze around the dense edges of the pillars is material getting heated up and evaporating away into space. We have caught these pillars at a very unique and short-lived moment in their evolution," explained Paul Scowen of Arizona State University in Tempe, who, with astronomer Jeff Hester, formerly of Arizona State University, led the original Hubble observations of the Eagle Nebula.

The infrared image shows that the reason the pillars exist is because the very ends of them are dense, and they shadow the gas below them, creating

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the long, pillar-like structures. The gas in between the pillars has long since been blown away by the ionizing winds from the central star cluster located above the pillars.

At the top edge of the left-hand pillar, a gaseous fragment has been heated up and is flying away from the structure, underscoring the violent nature of star-forming regions. “These pillars represent a very dynamic, active process,” Scowen said. “The gas is not being passively heated up and gently wafting away into space. The gaseous pillars are actually getting ionized (a process by which electrons are stripped off of atoms) and heated up by radiation from the massive stars. And then they are being eroded by the stars' strong winds (barrage of charged particles), which are sandblasting away the tops of these pillars.”

When Scowen and Hester used Hubble to make the initial observations of the Eagle Nebula in 1995, astronomers had seen the pillar-like structures in ground-based images, but not in detail. They knew that the physical processes are not unique to the Eagle Nebula because star birth takes place across the universe.

But at a distance of just 6,500 light-years, M16 is the most dramatic nearby example, as the team soon realized.

As Scowen was piecing together the Hubble exposures of the Eagle, he was amazed at what he saw. “I called Jeff Hester on his phone and said, ‘You need to get here now,’” Scowen recalled. “We laid the pictures out on the table, and we were just gushing because of all the incredible detail that we were seeing for the very first time.”

The first features that jumped out at the team in 1995 were the streamers of gas seemingly floating away from the columns. Astronomers had previously debated what effect nearby massive stars would have on the surrounding gas in stellar nurseries. “There is only one thing that can light up a neighborhood like this: massive stars kicking out enough horsepower in ultraviolet light to ionize the gas clouds and make them glow,” Scowen said. "Nebulous star-forming regions like M16 are the interstellar neon signs that say, ‘We just made a bunch of massive stars here.’ This was the first time we had directly seen observational evidence that the erosionary process, not only the radiation but the mechanical stripping away of the gas from the columns, was actually being seen.”

By comparing the 1995 and 2014 pictures, astronomers also noticed a lengthening of a narrow jet-like feature that may have been ejected from a newly forming star. The jet looks like a stream of water from a garden hose. Over the intervening 19 years, this jet has stretched farther into space, across an additional 60 billion miles, at an estimated speed of about 450,000 miles per hour.

Our Sun probably formed in a similar turbulent star-forming region. There is evidence that the forming solar system was seasoned with radioactive shrapnel from a nearby supernova. That means that our Sun was formed as part of a cluster that included stars massive enough to produce powerful ionizing radiation, such as is seen in the Eagle Nebula. “That’s the only way the nebula from which the Sun was born could have been exposed to a supernova that quickly, in the short period of time that represents, because supernovae only come from massive stars, and those stars only live a few tens of millions of years,” Scowen explained. “What that means is when you look at the environment of the Eagle Nebula or other star-forming regions, you're looking at exactly the kind of nascent environment that our Sun formed in.”

NASA’s Hubble Space Telescope has taken a bigger and sharper photograph of the iconic Eagle Nebula’s “Pillars of Creation,” shown at right. The original 1995 Hubble image of the gaseous towers, taken with Hubble’s Wide Field Planetary Camera 2, is shown at left.

Astronomers combined several Hubble exposures to assemble a wider view of the pillars, which stretch about 5 light-years high in the new image. The dark, finger-like feature at bottom right may be a smaller version of the giant pillars. The image was taken with Hubble's versatile and sharp-eyed Wide Field Camera 3.

The pillars are bathed in the blistering ultraviolet light from a grouping of young, massive stars located off the top of the image. Streamers of gas can be seen bleeding off pillars as the intense radiation heats and evaporates it into space. Denser regions of the pillars are shadowing material beneath them from the powerful radiation. Stars are being born deep inside the pillars, which are made of cold hydrogen gas laced with dust. The pillars are part of a small region of the Eagle Nebula, a vast star-forming region 6,500 light-years from Earth.

In the new image at right, oxygen emission is blue, sulfur is orange, and hydrogen and nitrogen are green.

Credit for WFPC2 image: NASA, ESA, STScI, and J. Hester and P. Scowen (Arizona State University). Credit for WFC3 image: NASA, ESA, and the Hubble Heritage Team (STScI/AURA)

Photo Right: A Near-Infrared View of the Pillars of Creation

See caption on next page.

A Near-Infrared View of the Pillars of Creation

This NASA Hubble Space Telescope image, taken in near-infrared light, transforms the pillars into eerie, wispy silhouettes, which are seen against a background of myriad stars.

The near-infrared light can penetrate much of the gas and dust, revealing stars behind the nebula as well as hidden away inside the pillars. Some of the gas and dust clouds are so dense that even the near-infrared light cannot penetrate them. New stars embedded in the tops of the pillars, however, are apparent as bright sources that are unseen in the visible image.

The ghostly bluish haze around the dense edges of the pillars is material getting heated up by the intense ultraviolet radiation from a cluster of young, massive stars and evaporating away into space. The stellar grouping is above the pillars and cannot be seen in the image. At the top edge of the left-hand pillar, a gaseous fragment has been heated up and is flying away from the structure, underscoring the violent nature of star-forming regions.

Astronomers used filters that isolate the light from newly formed stars, which are invisible in the visible-light image. At these wavelengths, astronomers are seeing through the pillars and even through the back wall of the nebula cavity and can see the next generations of stars just as they're starting to emerge from their formative nursery.

Credit: NASA, ESA, and the Hubble Heritage Team (STScI/AURA)

The **Atlanta Astronomy Club, Inc**., one of the South's largest and oldest astronomical society, meets at **8:00 P.M.** on the 3rd Saturday of each month at the Atlanta Freethought Society building in Smyrna, 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: Mark Banks President@AtlantaAstronomy.org

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ATLANTA ASTRONOMY CLUB EST. 1947

The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

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

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www.beetagg.com

FIRST CLASS

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

AAC Events are listed in BOLD

Jan 3rd, Saturday: Quadrantids Meteor Shower. Pluto conjunction with Sun.

Jan 4th, Sunday: Full Moon. Latest Sunrise in Atlanta: ~7:42 AM. Earth at Perihelion.

Jan 7th, Wednesday: Moon near Jupiter.

Jan 10th, Saturday: Mercury & Venus less than 1 degree apart.

Jan 13th, Tuesday: Moon Last Quarter.

Jan 14th, Wednesday: Mercury Greatest Elongation East.

Jan 16th, Friday: Moon near Saturn.

Jan 17th, Saturday: **AAC Meeting at Fernbank Science Center 3:00PM. CEA Meeting 3:30PM.**

Jan 19th, Monday: Mars 1/4 degree from Neptune.

Jan 20th, Tuesday: New Moon.

Jan 21st, Wednesday: Thin crescent moon forms grouping with Mercury & Venus.

Jan 24th, Saturday: Triple Moon Shadow Transit on Jupiter 1:27-1:52AM

Jan 26th, Monday: Moon First Quarter.

Jan 30th, Friday: Mercury at Inferior Conjunction.

Feb 3rd, Tuesday: Full Moon.

Feb 6th, Friday: Jupiter at Opposition.

Feb 11th, Wednesday: Moon Last Quarter.

Feb 14th, Saturday: **AAC Meeting at Fernbank Science Center 3:00PM.**

Feb 18th, Wednesday: New Moon.

Feb 20th, Friday: Close grouping of Moon, Venus, and Mars.

Feb 21st, Saturday: **CEA Meeting at 3:30PM.** Conjunction Venus and Mars.

Feb 25th, Wednesday: Moon First Quarter.

Feb 26th, Thursday: Neptune conjunction with Sun. Mercury Greatest Elongation West.

Mar 5th, Thursday: 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 .

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 February is Saturday, January 24. Submissions after the deadline will go in the following issue.**