

The Focal Point

The Atlanta Astronomy Club
Established 1947
March 2016

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Editor: Tom Faber

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March AAC Meeting

Please join us for the next meeting of the Atlanta Astronomy Club, to be held on Saturday, March 19th at 3PM at the Fernbank Science Center. (Note that our meetings are now held on the 3rd Saturday of the month). A short beginner's program will be presented at 2PM. Our featured speaker will be Richard Jakiel, Program Chair of the AAC.

The Talk

Richard will present a talk entitled "The Canals of Mars," which will cover Mars in both science fact and science fiction from the days of Schiaparelli, Lowell, and H.G. Wells to modern spacecraft observations of the "Red Planet".

Speaker Bio

Richard is a member of several astronomical organizations, he has contributed over 70 astronomy articles to magazines and professional journals that include Sky & Telescope, Astronomy, Deep Sky Observer (DSO), The Strolling Astronomer (ALPO), Astronomie Heute, Magellan, Amateur Astronomy, plus numerous descriptions and drawings for the book Night Observer's Guide. In 2006, he was a co-author for the Springer publication: *Galaxies: How to Observe Them*. He has taught astronomy and physics at the University of West Georgia (1997–2002) and was the director of the Webb Society's Galaxy Section. For the past 6 years, he has been the Science Director for the rapidly growing Alternate History/Steampunk convention - AnachroCon. Richard is also a review editor for the Association of Lunar and Planetary Observers (ALPO), and a number of his images of the planets and the Moon have graced the pages and covers of their main publication – The Strolling Astronomer. Since joining the AAC in 1987, Richard has held every major position with the exception of treasurer.

His current research interests include the imaging and monitoring the major bodies of the solar system, ancient (Greco-Roman) astronomy, and deep-sky imaging with a DSLR (Canon). He observes and images in the 'wilds' of Lithia Springs, less than 1 mile west of Sweetwater State Park.



Photo by Richard Jakiel

March is Membership Renewal Month

The AAC has moved to a "one-date-for-all" membership renewal. ALL CLUB MEMBERS, with certain exceptions, should submit their \$30 dues for 2016 by the end of March. Please send your renewals to AAC Treasurer Sharon Carruthers, renew online using PayPal, or you can bring your renewal to the March Meeting. For more information see: http://atlantaastronomy.org/?page_id=22

Thank You for your support of the AAC!

From the President's Desk

By Mark Banks, AAC President

We have had a very busy year so far and I want to thank all of our volunteers for their dedication to our club mission to educate the public about the sky. We still have a lot to do before the school year ends so please keep an eye on our calendar and volunteer when you can. During the summer months our focus will shift to various summer camp programs and scout troops, so as you can see, we need help year round. You don't need to be an expert. Most of the people you will talk to know very little about what's up in the night sky. You will get a great sense of satisfaction from knowing that you are encouraging and inspiring the next generation of astronomers, scientist, and engineers. Sometimes you also get free stuff like pizza, hot dogs, cookies & ice cream!

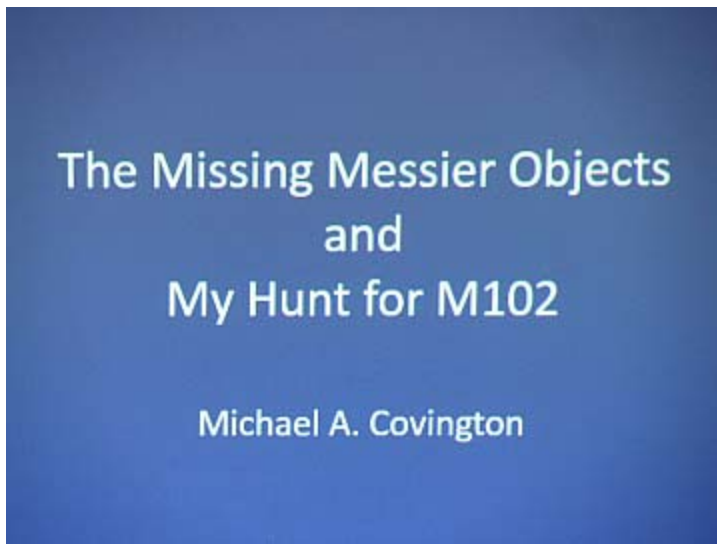
Elections this year will be done on line so please be sure your information on the club roster is correct so you will get your ballot by email. Elections will be held during the month of May. You can find the roster by clicking on the night sky network from the club main web site. We also need nominations for all positions, so don't just sit there, do something!!! If you would like to run for any position please contact any of the club officers and let us know what you can do for the club.

February AAC Meeting Report

Photos by Tom Faber.

The February general meeting was held beginning at 3PM on Saturday, February 20th at Fernbank Science Center. There were about 50 members and guests present for the meeting. Our guest speaker was Dr. Michael A. Covington. Michael presented a talk entitled “The Missing Messier Objects and My Hunt for M102” in which he explained how Charles Messier came to produce his now famous list of “faint fuzzy” objects that are not comets. Messier published the first edition of his list in 1771 which included objects M1-M45. Messier was interested in finding comets and decided to compile a list of objects in the sky that appear like faint comets but are really not. Messier compiled (with the aid of colleague Pierre Méchain) and published the final version of his list, containing 103 objects in 1781 in the *Connaissance des Temps*. Then during the 20th century astronomers gradually added objects M104-M110 to the list after finding notes indicating that either Messier or Méchain had seen these objects but they had not been included in Messier’s list. After his talk Michael answered a number of questions.

After the talk, there were club announcements by Club officers about upcoming events and activities.



The February Charlie Elliott Meeting

By Valorie Whalen, Charlie Elliott Chapter Recording Secretary

All photos are courtesy of Valorie Whalen.

The February monthly meeting for the Charlie Elliott Chapter of the Atlanta Astronomy Club was held on 2/6/16 in the Dining Hall at the Charlie Elliott Wildlife Management property in Mansfield, Georgia.

Prior to the beginning of the meeting, our astrophotography committee co-chair, Van Macatee, hosted a workshop on PixInsight at 2:30 p.m. There were 11 members of the club present for this workshop.



Jack Fitzmier, Chapter Director, called the meeting to order at 4:00 p.m. and welcomed everyone. There were twenty-seven members and guests in attendance. David Whalen, Observing Director, treated us to another energetic “All of the Above”, which gives a run-down of what you can expect to see in the sky in the coming weeks. Beginning with a wonderful “Star Trek” related theme, complete with a musical score, it included current weather conditions for the Jon Wood Astronomy Field, relative location of each of the planets, along with the sun and moon, and each of their respective rise and set times. He included H-alpha photos of the Sun as of 2/6/2016. Also discussed were several deep-sky targets in the categories of

“Relaxing”, “Intriguing”, “Taxing” and a Challenge Object. The full list of targets for the month of January is available on the website.

Jack also presented the Outreach awards for those folks who had attended five or more events during 2015. Those recipients were: Theo Ramakers, Frank Garner, Marie Lott, Dan Thoman, Bob Jacoby, Jack Fitzmier, David Whalen and Valorie Whalen. He also announced AL awards for Dan Thoman-Stellar Level Outreach and Double Star, and Valorie Whalen-Stellar Evolution. Finally, Jack also announced to great surprise that David Whalen had submitted his logs for the Herschel 400 program. He also entertained the crowd by reading some of David's more comedic observations of the targets.

Our featured speaker of the month was Dr. Michael Covington, introduced by Marie Lott. Dr. Covington's talk was “The Missing Messier Objects”. His talk included a short bio of Charles Messier, with references to three publications of his catalogue as discovered objects were added, and the publications were updated. The main point of discussion was M102, and the fact that it is referenced as being a duplicate of M101. After some detailed sleuth work by Dr. Covington, it seems that Messier's assistant, Pierre Mechain, may have erroneously recorded it as duplicated, because of its proximity to M101. However, more likely is the theory that M102

is actually NGC 5866, which corresponds to most of Messier's location descriptions, except for being one hour off in Right Ascension. Spiral Galaxy NGC 5866 is also acknowledged by Celestron as being M102 in its Go-To location library.



Finally, Ken Poshedly gave a quick talk on some articles to be expected in the upcoming issues of ALPO.

This month's astrophotography targets are: M81 and M82 (also known as Bode's Galaxy and the Cigar Galaxy) in Ursa Major.

Upcoming Events:

Outreach Event: Space Night at New Hope Church in Lawrenceville on Wednesday, February 10, 2016 from 6:00 to 8:00 p.m.

Outreach Event: Space Camp at Hightower Trail Elementary School in Conyers on Friday, February 26, 2016 from 6:00 to 9:30 p.m.

Outreach Event: STEM night at Snellville Middle School in Snellville on Thursday, March 3, 2016 from 6:00 to 7:30 p.m.

Outreach Event: Astronomy night at Summerour Middle School in Norcross on Friday, March 4, 2016 from 6:00 to 10:00 p.m.

CE Meeting: March 12th at 5:00 p.m. in the Campbell Aquatic Building. This is one of our quarterly potluck dinner meetings. A potluck sign-up link will be posted on the website.

The Next Charlie Elliott Meeting

The next meeting of the Charlie Elliott Chapter will be held on Saturday, March 12, 2016 at 5:00 pm in the Campbell Building on Murder Creek Church Road (33.4564119,-83.7303152). This will be our quarterly potluck. A sign-up for the potluck will be posted in March.

At sunset we will head over to Jon Wood Astronomy Field (33.468865, -83.735319) for a night of observing, weather permitting. All are welcome. Bring your scopes, binoculars, or just bring yourself – we enjoy sharing the night sky with our guests! Be sure to arrive before 10 pm, as that is when the security gate on Elliott Trail locks to new entry.

Minutes and Handouts: The minutes, handouts, and presentations from past meetings of Charlie Elliott Astronomy are available for download on our Past Events web page, <http://ceastronomy.org/blog/events>. Monthly sky maps are available from skymaps.com.

2016 Meeting Schedule: March 12 (potluck), April 9, May 7, June 4 (potluck), July 9, August 6, September 10 (potluck), October 29, November 19, December 10 (potluck)

The AAC Zombie Party

By Daniel Herron, AAC Observing Chair

This year's Zombie Party is scheduled for Thursday, April 7 thru Sunday, April 10 (3 nights) at the Deerlick Astronomy Village.

The Zombie party is a no-frills, open to the public, 3 night star party hosted by the Atlanta Astronomy Club. No speakers, workshops, or sessions - just observing. This event is open to all, beginners and experts alike, AAC members, and non-members (how else are we going to get you hooked!).

The event is \$15 per person per night due upon arrival, no refunds for bad weather once paid. See you there!

Weather:

General rule if the weather looks to be rainy during the night we will just cancel for that night and start the party the next day. I will make the go/no-go decision for Thursday by Wednesday night. Backup date for bad weather (if the entire event is cancelled) will be May 5 - 8.

Note:

The Zombie party got its name from the way we all look the next morning after staying awake all night observing and has nothing to do with the undead that are occasionally rumored to walk the area!



Hubble Team Breaks Cosmic Distance Record

STScI News Release March 3, 2016

By pushing NASA's Hubble Space Telescope to its limits, an international team of astronomers has shattered the cosmic distance record by measuring the farthest galaxy ever seen in the universe. This surprisingly bright, infant galaxy, named GN-z11, is seen as it was 13.4 billion years in the past, just 400 million years after the big bang. GN-z11 is located in the direction of the constellation of Ursa Major.

"We've taken a major step back in time, beyond what we'd ever expected to be able to do with Hubble. We see GN-z11 at a time when the universe was only three percent of its current age," explained principal investigator Pascal Oesch of Yale University in New Haven, Connecticut. The team includes scientists from Yale University, the Space Telescope Science Institute (STScI) in Baltimore, Maryland, and the University of California in Santa Cruz, California.

Astronomers are closing in on the first galaxies that formed in the universe. The new Hubble observations take astronomers into a realm that was once thought to be only reachable with NASA's upcoming James Webb Space Telescope.

This measurement provides strong evidence that some unusual and unexpectedly bright galaxies found earlier in Hubble images are really at extraordinary distances. Previously, the team had estimated GN-z11's distance by determining its color through imaging with Hubble and NASA's Spitzer Space Telescope. Now, for the first time for a galaxy at such an extreme distance, the team used Hubble's Wide Field Camera 3 to precisely measure the distance to GN-z11 spectroscopically by splitting the light into its component colors.

Astronomers measure large distances by determining the "redshift" of a galaxy. This phenomenon is a result of the expansion of the universe; every distant object in the universe appears to be receding from us because its light is stretched to longer, redder wavelengths as it travels through expanding space to reach our telescopes. The greater the redshift, the farther the galaxy.

"Our spectroscopic observations reveal the galaxy to be even farther away than we had originally thought, right at the distance limit of what Hubble can observe," said Gabriel Brammer of STScI, second author of the study.

Before astronomers determined the distance for GN-z11, the most distant galaxy measured spectroscopically had a redshift of 8.68 (13.2 billion years in the past). Now, the team has confirmed GN-z11 to be at a redshift of 11.1, nearly 200 million years closer to the time of the big bang. "This is an extraordinary accomplishment for Hubble. It managed to beat all the previous distance records held for years by much larger ground-based telescopes," said investigator Pieter van Dokkum of Yale University. "This new record will likely stand until the launch of the James Webb Space Telescope."

Continued on pg 6

M35 & NGC2158 by Chuck Painter

The image on the left is of M35 and background open cluster NGC2158 to the lower right, which I took about a month ago from the driveway here in Alpharetta. It's 1 hour of 5 minute exposures with my normal setup except that I have added an Astrophysics CCDT67 focal reducer which widened and flattened my field, and dropped my focal ratio to about F/5.6. The equipment used was Astrotek 8-inch Ritchey-Chretien on Atlas EQ-G mount, an Orion Starshoot Pro one shot color camera, and guiding was done with an Orion Starshoot autoguider through an Orion Short Tube 80. Image was processed with Pixinsight.

A Visit to Mount Wilson Observatory

By Larry Phillips

Last year, during a visit to Los Angeles, I made a point of driving up to Mt. Wilson Observatory. The observatory sits at 5,700 feet elevation, overlooking the Los Angeles basin. I went there mostly to see the 100-inch Hooker Telescope, arguably the most significant telescope in the history of astronomy.

It was with the Hooker telescope that Edwin Hubble, in the 1920's, made his seminal discoveries. First, he established that our Milky Way was not the whole universe, but was instead one of millions of similar galaxies, and he was able to measure the distance to many of them. After this, he used the red shift of these galaxies to show that they were moving away from us, and at a speed proportional to their distance. In other words, the universe was expanding. Later, in the 1930's, Fritz Zwicky used the Hooker to find the first evidence for dark matter.

Mount Wilson is still an active observatory, and the Hooker telescope is still used, but light pollution limits the research that can be done. However, when I arrived at midday, the observatory looked like a ghost town. There is no security gate or guard, and in the three hours I was there, I saw exactly two people, both of them fellow tourists.

The dome that houses the Hooker has a visitor's gallery, from which I took this photograph (below).

In a corner, not in the photograph, is Edwin Hubble's observing chair. I would have preferred to be allowed onto the observing floor, and see the telescope up close. A week before my trip, I had tried to arrange for this by contacting someone at the observatory. No one answered my phone call or my email - maybe it is a ghost observatory.

There are several other buildings on the observatory grounds, as shown in this photograph (right).

One of these, I noticed, is devoted to solar observing, and is operated by Georgia State. The next photograph is a view from the mountain top, with Los Angeles, and the ocean beyond, dimly visible through the smog.

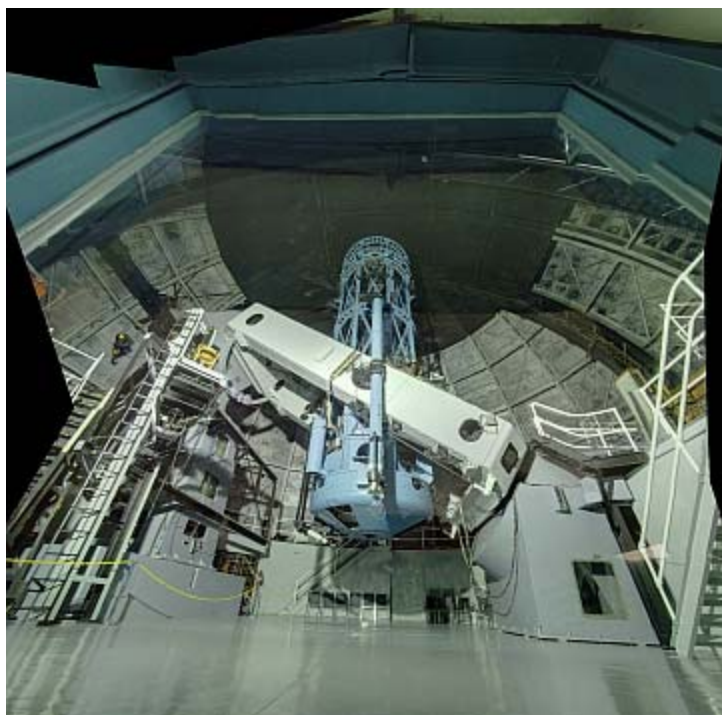
Mount Wilson was founded in 1905, and the person behind it was George Ellery Hale. Hale was a competent astronomer, but his greatest talent was persuading wealthy people to contribute money to his projects. Over a

period of 78 years, from 1898 to 1976, the largest telescope in the world was always a telescope for which he had raised the funds.

For Mount Wilson, Hale hired a phenomenally gifted engineer and optician named George Ritchey. Ritchey invented methods for grinding and testing large mirrors, which he used for the first telescope, a 60 inch, and later, the 100-inch Hooker. Both mirrors were among the most perfect that had ever been made. Ritchey also designed the mounting for the telescopes.

Before the 100 inch was built, Ritchey had conceived a new type of telescope, now called the Ritchey-Cretien, and he urged Hale to allow him to use the design for the new telescope. However, Hale had by then developed an irrational hatred for Ritchey, and he refused. As soon as the telescope was completed, Hale fired Ritchey, and he then used his influence to ensure that Ritchey never found any substantial work in optics again. Ritchey died in poverty in 1945. For Hale's next telescope, the 200-inch at Mt. Palomar, he prevented it from using the superior Ritchey-Cretien design, which has made that telescope less useful than it could have been. There is no known reason for Hale's tirade, but he suffered all his life from various forms of mental illness – his Ritchey vendetta was probably just part of that.

After Ritchey was fired, Hale ordered that all references to Ritchey be removed from Mount Wilson. That action lives on at the Mount Wilson Observatory museum, which I visited. Of the museum's hundred or so photographs and exhibits, the man who designed and built the great telescopes is never mentioned.



Continued from pg 4

The combination of Hubble's and Spitzer's imaging reveals that GN-z11 is 25 times smaller than the Milky Way and has just one percent of our galaxy's mass in stars. However, the newborn GN-z11 is growing fast, forming stars at a rate about 20 times greater than our galaxy does today. This makes such an extremely remote galaxy bright enough for astronomers to find and perform detailed observations with both Hubble and Spitzer.

The results reveal surprising new clues about the nature of the very early universe. "It's amazing that a galaxy so massive existed only 200 million to 300 million years after the very first stars started to form. It takes really fast growth, producing stars at a huge rate, to have formed a galaxy that is a billion solar masses so soon," explained investigator Garth Illingworth of the University of California, Santa Cruz.

These findings provide a tantalizing preview of the observations that the James Webb Space Telescope will perform after it is launched into space in 2018. "Hubble and Spitzer are already reaching into Webb territory," Oesch said. "This new discovery shows that the Webb telescope will surely find many such young galaxies reaching back to when the first galaxies were forming," added Illingworth.

This discovery also has important consequences for NASA's planned Wide-Field Infrared Survey Telescope (WFIRST), which will have the ability to find thousands of such bright, very distant galaxies.

The team's findings will appear in the March 8, 2016, edition of The Astrophysical Journal.



Object Names: GOODS North Survey, GN-z11

Hubble Space Telescope astronomers, studying the northern hemisphere field from the Great Observatories Origins Deep Survey (GOODS), have measured the distance to the farthest galaxy ever seen. The survey field contains tens of thousands of galaxies stretching far back into time. Galaxy GN-z11, shown in the inset, is seen as it was 13.4 billion years in the past, just 400 million years after the big bang, when the universe was only three percent of its current age. The galaxy is ablaze with bright, young, blue stars, but looks red in this image because its light has been stretched to longer spectral wavelengths by the expansion of the universe.

Credit: NASA, ESA, P. Oesch (Yale University), G. Brammer (STScI), P. van Dokkum (Yale University), and G. Illingworth (University of California, Santa Cruz)

Upcoming Sidewalk Astronomy Events

By Daniel Herron, AAC Observing Chair

We could use some volunteers at these event. Please let me know (observing@atlantaastronomy.org) if you can help out.

2016-03-10, 5:30 PM-7:30 PM, Fun with Astronomy and Space Exploration , 2757 Main Street, East Point

2016-03-25, 7:00 PM-9:00 PM, Atlanta Science Festival Star Parties, Arabia Mountain High School, 6610 Browns Mill Rd, Lithonia

2016-03-25, 8:00 PM-10:00 PM, Atlanta Science Festival Star Parties, Fernbank Science Center, 156 Heaton Park Drive NE, Atlanta

2016-04-22, 7:00 PM-9:00 PM, Night Under the Stars, Brook Run Park, 4770 N Peachtree Rd, Dunwoody

2016-05-10, 8:00 PM-9:00 PM, Forest Park Sidewalk Astronomy 2016, Forest Park Library, 4812 West Street, Forest Park

Please see the club website for more details for the events: <http://atlantaastronomy.org/>

Methane Snow on Pluto's Peaks

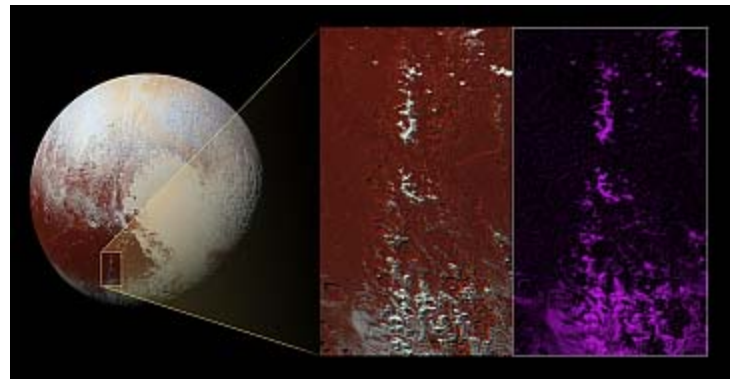
Release Date: March 3, 2016

A chain of snow-capped mountains stretches across the dark expanse on Pluto informally named Cthulhu Regio.

Cthulhu (pronounced "k-thu-lu") extends nearly halfway around Pluto's equator, starting to the west of the great nitrogen ice plains informally named Sputnik Planum (see color image of Pluto below). Cthulhu measures approximately 1,850 miles (3,000 kilometers) long and 450 miles (750 kilometers) wide, and with an area of more than 700,000 square miles (1.8 million square kilometers) it's a little larger than Alaska.

Cthulhu's appearance is characterized by a dark surface, which scientists think is due to it being covered by a layer of dark tholins - complex molecules that form when methane is exposed to sunlight. Cthulhu's geology exhibits a wide variety of landscapes, from mountainous, to smooth, to heavily cratered and fractured.

The enhanced color image shown as the left-hand inset below reveals a mountain range located in southeast Cthulhu that measures 260 miles (420 kilometers) long. The range is situated among craters, with narrow valleys separating its peaks. The upper slopes of the highest peaks are coated with a bright material that contrasts sharply with the dark red color of the surrounding plains.



Scientists think this bright material could be predominantly methane that has condensed as an ice onto the peaks from Pluto's atmosphere. That this material coats only the upper slopes of the peaks suggests methane ice may act like water in Earth's atmosphere, condensing as frost at high altitude. Compositional data from the Ralph/Multispectral Visible Imaging

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Camera (MVIC) on NASA's New Horizons spacecraft, shown in the right-most inset, indicates that the location of the bright ice on the mountain peaks correlates almost exactly with the distribution of methane ice (shown in false color as purple) on the mountains.

The resolution of the enhanced color image is about 2,230 feet (680 meters) per pixel. The image measures approximately 280 miles (450 kilometers) long by 140 miles (225 kilometers) wide. It was obtained by New Horizons at a range of approximately 21,100 miles (33,900 kilometers) from Pluto, about 45 minutes before the spacecraft's closest approach to Pluto on July 14, 2015.

Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute



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 **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: Mark Banks President@AtlantaAstronomy.org

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PSSG Co-Chair: Open

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sidewalkastronomy@AtlantaAstronomy.org

Light Trespass: Ken Edwards, Contact info TBA

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

AAC Webmaster: Daniel Herron
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Calendar by Tom Faber (Times EDT/EST unless noted)

AAC Events are listed in BOLD

- Mar 1st, Tuesday: Moon Last Quarter.
- Mar 8th, Tuesday: Jupiter at Opposition.
- Mar 9th, Wednesday: New Moon.
- Mar 12th, Saturday: **CE Chapter Meeting & Potluck.**
- Mar 13th, Sunday: Daylight Saving Time begins 2:00AM.
- Mar 14th, Monday: Moon First Quarter.
- Mar 19th, Saturday: **AAC Mtg at Fernbank Science Center 3:00PM.**
- Mar 20th, Sunday: Spring Equinox at 12:30AM.
- Mar 23rd, Wednesday: Full Moon. Mercury at Superior Conjunction.
- Mar 31st, Thursday: Moon Last Quarter.
- Apr 7th, Thursday: New Moon.
- Apr 9th, Saturday: **CE Chapter Meeting.** Uranus Conjunction with Sun.
- Apr 14th, Thursday: Moon First Quarter.
- Apr 16th, Saturday: **AAC Mtg at Fernbank Science Center 3:00PM.**
- Apr 18th, Monday: Mercury at Greatest Elongation East.
- Apr 22nd, Friday: Full Moon.
- Apr 25th, Monday: Grouping of the Moon, Mars, Saturn, and Antares.
- Apr 29th, Friday: Moon Last Quarter.
- May 6th, Friday: New Moon.
- May 7th, Saturday: **CE Chapter Meeting.**
- May 9th, Monday: Mercury at Inferior Conjunction - Transit of Mercury: 1st Contact 7:13:43AM, Greatest 10:58:15AM, Last Contact 2:41:42PM.
- May 13th, Friday: Moon First Quarter.
- May 21st, Saturday: **AAC Mtg at Fernbank Science Center 3:00PM.** Full Moon.

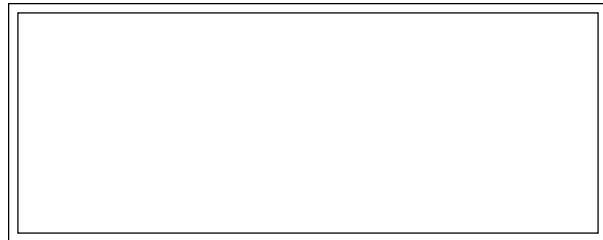
For more event listings see the calendar at www.atlantaastronomy.org

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 PDFs are okay. You can submit articles anytime up to the deadline. **The deadline for April is Saturday, March 26. Submissions after the deadline will go in the following issue.**



FIRST CLASS



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

2206 Tretridge Parkway
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Tom Faber
FROM:

Newsletter of The Atlanta Astronomy Club, Inc.

The Focal Point



www.atlantaastronomy.org
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