

# The Focal Point

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The Atlanta Astronomy Club  
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Editor: Tom Faber

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## October AAC General Meeting

Please join us for the next general meeting of the Atlanta Astronomy Club, to be held on Saturday, October 15th at 3PM at the Fernbank Science Center. A short beginner's program will be presented at 2PM. Our featured speaker will be AAC member Tom Crowley. Tom will present a talk titled "Searching for ET in all the Wrong Places".

### The Talk

Abstract: We have searching for ET for well over 50 years. Why haven't we found them? Perhaps it's time to look at other methods available using the latest technologies to improve the search. A review of where we have been in the search and a look at many new techniques that may well prove there is life in our Galaxy in the near future. How new methods of finding planets in the Goldilocks zone around distant suns may improve the odds



of finding ET using the SETI (Search for Extra Terrestrial Intelligence) Search. Astro-Biology methods in conjunction with candidate planets may be our best technique for finding life on other worlds.

### Speaker Bio

Tom Crowley has been a long time member of the Atlanta Astronomy Club and has been a long time member and past president of SARA - the Society of Amateur Radio Astronomers. Tom has constructed and made observations with his own radio telescopes. For more information about SARA visit their web site <http://www.radio-astronomy.org> For more information about SETI see [https://en.wikipedia.org/wiki/Search\\_for\\_extraterrestrial\\_intelligence](https://en.wikipedia.org/wiki/Search_for_extraterrestrial_intelligence) and <http://www.seti.org>



## From the President's Desk

By Mark Banks, AAC President

It's that time of year again when all the schools are requesting our help with Astronomy related events and science projects. Please keep an eye on the club calendar and volunteer whenever possible. You don't need to be an expert. If you know some of the basic stuff, like the difference in a star and a planet, you know much more than most of the people you will be talking to. It's also a lot of fun and very rewarding to encourage the next generation of Astronomers and science nerds. They will be very grateful for any help you can give them.

Help wanted: We need someone to take over as our Program Chair. As program chair you will schedule speakers for each monthly meeting and coordinate with them on their presentation. It's not a very difficult job. In the Atlanta area we have plenty of science professionals as well as Graduate students that are happy to talk to us. If interested please contact any club officer.

## September AAC Meeting Report

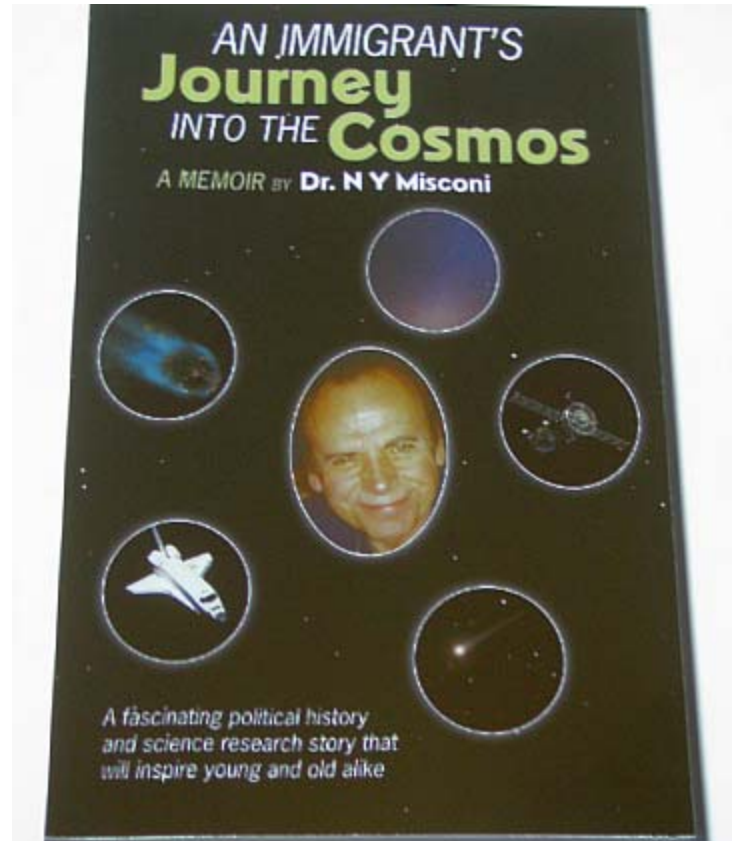
Photos by Tom Faber unless noted

The September AAC general meeting was held on Saturday, September 17th at the Fernbank Science Center. About 40 members and guests were present. The general meeting began at 3PM. Our featured speaker was Dr. Nebil Misconi, who presented a talk about his early years growing up in Iraq, his undergraduate studies at the University of Istanbul, Turkey, his immigration to the United States to complete his graduate studies, and his involvement in space sciences studies since then. His research has included studies of interplanetary dust in the solar system.

After his talk Dr. Misconi answered a number of questions about his work and life.

After the Q&A session there were announcements by Club officers about upcoming events and activities.

After the meeting adjourned a number of attendees went to Athens Pizza for dinner and more astronomy discussions.



## 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 September Charlie Elliott Meeting

By Brian Tucker, Charlie Elliott Chapter Recording Secretary

Photos by

The September monthly meeting for the Charlie Elliott Chapter of the Atlanta Astronomy Club was held on 9/10/16 in the Charlie Elliott Wildlife Management property in Mansfield, Georgia. There were 31 members in attendance.

David Whalen, Observing Chair, called the meeting to order at 6:00 p.m. and welcomed everyone. There were 31 attendees in attendance. This was the quarterly potluck and everyone enjoyed a good dinner before the meeting business launched at 6:35 PM.

David Whalen, Observing Director, treated us to another exciting episode of "All of the Above", which gives a run-down of what you can expect to see in the sky in the coming weeks. The theme of this month's presentation was "The Fall Equinox". After a public service announcement from the newly appointed Charlie Elliott Superhero, LockMan, on how to properly lock the gate at the entrance to the Jon Wood field, the presentation resumed as normal.

This meeting was rather special as there were several awards presented, most notably there were three Master Observer awards presented to Marie Lott, #184, David Whalen, #186 and Valorie Whalen, #187.



In other business, there were several outreach events discussed for this month:

East Newton Elementary

September 10, 8-10p, Charlie Elliott Wildlife Center, Astronomy Field, Elliott Trail, Mansfield, GA 30055. Celestial viewing.

Heard Mixon Elementary - this event will be rescheduled.

Home School Day at Stone Mountain - Marie Lott

September 30, 10a-5p, Stone Mountain Park. Solar viewing.

Tree Climbing Rendezvous - need coordinator

September 30, 9-11p, Charlie Elliott Wildlife Center, Astronomy Field, Elliott Trail, Mansfield, GA 30055. Celestial viewing.

Madison Fall Festival and Chili Cookoff - Dan Thoman

October 8, 10a-4p, Town Park, 218 W Jefferson St, Madison, GA 30650. Solar viewing.

Mansfield Elementary STEM - need coordinator

October 14, 9a-12 noon, 45 3rd Ave, Mansfield, GA 30055. Solar viewing with possible classroom presentation.

Becoming an Outdoors Woman - need coordinator

November 4, 9-11p, Charlie Elliott Wildlife Center, Shepherd Room, Elliott Trail, Mansfield, GA 30055. Celestial viewing.

Becoming an Outdoors Woman - Dan Thoman

November 5, 1-4:30p, Charlie Elliott Wildlife Center, Elliott Trail, Mansfield, GA 30055. Indoor class presentation, solar viewing.

There were no Astronomical league awards for this month.

As this was the quarterly potluck, there was no program. After the meeting adjourned, 20 members met on the field for the outreach event with East Newton Elementary, where there were approximately 25 attendees.

## Downloads from the Last Meeting

<http://ceastronomy.org/blog/wp-content/uploads/2016/09/2016-09-All-of-the-Above-Presentation-Archive.pdf>

[http://ceastronomy.org/blog/wp-content/uploads/2016/09/2016\\_09\\_TARGET\\_LIST.pdf](http://ceastronomy.org/blog/wp-content/uploads/2016/09/2016_09_TARGET_LIST.pdf)

<http://www.skymaps.com/downloads.html>

## The Next Charlie Elliott Meeting

### Meeting Details

**Stellar Evolution** - Join us October 29th, 2016 at 4:30 p.m. at the Charlie Elliott Conference Center, Conference Room B, for an engaging and informative discussion with Georgia State University's Dr. Jeremy Jones. Dr. Jones found himself drawn to science fiction, especially anything set in space, at a very young age. But it wasn't until his sophomore year of high school that Dr. Jones realized that much of the science fiction he was reading had a basis in science fact. Finding out that quantum mechanics and relativity weren't just the causes of odd fictional plot elements, but were even stranger in reality led him to dig deeper into physics. During his time as a physics major in college he found that he loved his few astronomy classes far more than any of his other physics classes. Dr. Jones eventually realized that astronomical research was his passion and later it would become his career. Fast forward a few years to October 2016 and Dr. Jones will be joining us to talk about his research involving stellar evolution, and his most recent project using Georgia State's CHARA Array to determine the size (and shape!) of nearby A-type stars, and based on that size, determine their ages. As always, be prepared to learn something new!

### All of the Above!

Charlie Elliott Astronomy Observing Supervisor David Whalen will reprise his stand up comedy routine and might even talk about what you can expect to see in the sky this month with binoculars and small telescopes, as well as the monthly observing challenge.

### Observing After the Meeting

All are invited to Jon Wood Astronomy Field immediately after the meeting (weather-permitting). The event is free and everyone is welcome.

Minutes & 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](http://www.skymaps.com).

Upcoming meeting dates are: November 19, December 10 (potluck), January 28, February 25, March 25 (potluck), April 22, May 27, June 24 (potluck), and July 22.

## Images by Chuck Painter

These two images were made by club member Chuck Painter using his imaging setup that consists of an AT8RC telescope with a Starshoot Pro Color Camera combined with an Astrophysics focal reducer. The images were processed with Nebulosity and PixInsight software.

The top image is of M16 (Eagle Nebula) and has a total exposure time of 130 minutes. The bottom image is of the galaxy NGC6946 and was made with a total exposure time of 55 minutes.



## The 2016 Peach State Star Gaze - Part 1

Photos by Tom Faber unless noted otherwise

The 23rd annual Peach State Star Gaze was held from Sunday, September 25th to Sunday, October 2nd. The weather was hot Sunday but the skies were pretty much clear Sunday night. Monday and Tuesday brought more hot weather and some showers. We watched a movie Monday night (*The Martian*) but by the time the movie was over the skies were pretty much clear again. Tuesday evening we had a double feature - *Forbidden Planet* followed by *The Dish*. The weather started cooling and dried out starting on Wednesday. By Friday and Saturday night the temperatures got down into the 40s.

Friday featured speakers presenting talks about imaging and Friday evening the AAC hosted a cake and ice cream social on the DAV pavilion. Saturday featured speaker was Dr. Michael Reynolds, Professor of

Astronomy at Florida State College in Jacksonville, Florida. Dr. Reynolds presented a talk about the total solar eclipse occurring on August 21, 2017. He talked about where to go to observe the eclipse and how to safely observe and photograph it.

Saturday saw many attendees win door prizes at the drawing after the talks. And Micki and GC were back with Micki's Kitchen serving breakfasts, sandwiches, snacks, and dinners during the day and plenty of hot coffee, hot chocolate, and brownies at night to keep us observers awake! We all had a great time and look forward to seeing everyone at the 2017 PSSG!

Here is part 1 of the 2016 Peach State Star Gaze photo gallery. Next month the *Focal Point* will have more photos from 2016 PSSG including speakers, door prize winners, and more.



*The field Saturday afternoon as the PSSG staff was getting ready for the arrival of attendees starting at noon on Sunday.*



*We were treated to a beautiful sunset Saturday evening.*



*Scorpius with Saturn and Sagittarius with Mars over the observing field Sunday evening. On the right is the red-lit dining tent set up in front of Micki's Kitchen (See photo top right).*



*A nice rainbow appeared after a brief shower in the late afternoon Monday.*



*There were some clouds early Monday evening but they mostly cleared out by around 10PM.*

*Continued on pg 7*

# Hubble Spots Possible Water Plumes Erupting on Jupiter's Moon Europa

NASA/STScI News Release September 26, 2016

Astronomers using NASA's Hubble Space Telescope have imaged what may be water vapor plumes erupting off the surface of Jupiter's moon Europa. This finding bolsters other Hubble observations suggesting the icy moon erupts with high-altitude water vapor plumes.

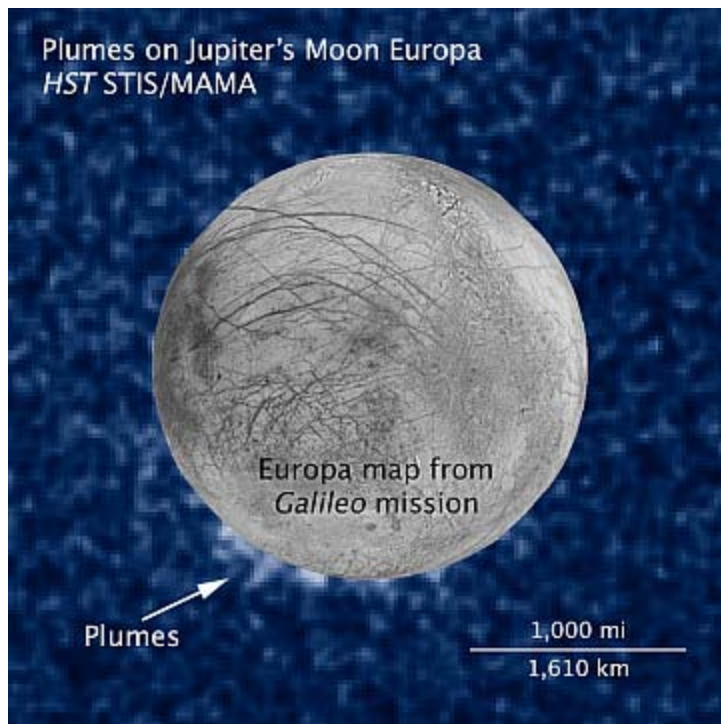
The observation increases the possibility that missions to Europa may be able to sample Europa's ocean without having to drill through miles of ice.

"Europa's ocean is considered to be one of the most promising places that could potentially harbor life in the solar system," said Geoff Yoder, acting associate administrator for NASA's Science Mission Directorate in Washington, D.C.. "These plumes, if they do indeed exist, may provide another way to sample Europa's subsurface."

The plumes are estimated to rise about 125 miles (200 kilometers) before, presumably, raining material back down onto Europa's surface. Europa has a huge global ocean containing twice as much water as Earth's oceans, but it is protected by a layer of extremely cold and hard ice of unknown thickness. The plumes provide a tantalizing opportunity to gather samples originating from under the surface without having to land or drill through the ice.

The team, led by William Sparks of the Space Telescope Science Institute (STScI) in Baltimore, Maryland, observed these finger-like projections while viewing Europa's limb as the moon passed in front of Jupiter.

The original goal of the team's observing proposal was to determine whether Europa has a thin, extended atmosphere, or exosphere. Using the same observing method that detects atmospheres around planets orbiting other stars, the team also realized if there was water vapor venting from Europa's surface, this observation would be an excellent way to see it.



Credit: NASA, ESA, W. Sparks (STScI), the USGS Astrogeology Science Center, and Z. Levay (STScI)

"The atmosphere of an extrasolar planet blocks some of the starlight that is behind it," Sparks explained. "If there is a thin atmosphere around Europa, it has the potential to block some of the light of Jupiter, and we could see it as a silhouette. And so we were looking for absorption features around the limb of Europa as it transited the smooth face of Jupiter."

In 10 separate occurrences spanning 15 months, the team observed Europa passing in front of Jupiter. They saw what could be plumes erupting on three of these occasions.

This work provides supporting evidence for water plumes on Europa. In 2012, a team led by Lorenz Roth of Southwest Research Institute in San Antonio, Texas, detected evidence for water vapor erupting from the frigid south polar region of Europa and reaching more than 100 miles (160 kilometers) into space. Although both teams used Hubble's Space Telescope Imaging Spectrograph (STIS) instrument, each used a totally independent method to arrive at the same conclusion.

"When we calculate in a completely different way the amount of material that would be needed to create these absorption features, it's pretty similar to what Roth and his team found," Sparks said. "The estimates for the mass are similar, the estimates for the height of the plumes are similar. The latitude of two of the plume candidates we see corresponds to their earlier work."

But as of yet, the two teams have not simultaneously detected the plumes using their independent techniques. Observations thus far have suggested the plumes could be highly variable, meaning that they may sporadically erupt for some time and then die down. For example, observations by Roth's team within a week of one of the detections by Sparks' team failed to detect any plumes.

If confirmed, Europa would be the second moon in the solar system known to have water vapor plumes. In 2005, NASA's Cassini orbiter detected jets of water vapor and dust spewing off the surface of Saturn's moon Enceladus.

Scientists may use the infrared vision of the James Webb Space Telescope, which is scheduled to launch in 2018, to confirm venting or plume activity on Europa. NASA also is formulating a mission to Europa with a payload that could confirm the presence of plumes and study them from close range during multiple flybys.

"Hubble's unique capabilities enabled it to capture these plumes, once again demonstrating Hubble's ability to make observations it was never designed to make," said Paul Hertz, director of the Astrophysics Division at NASA Headquarters in Washington, D.C. "This observation opens up a world of possibilities, and we look forward to future missions — such as the James Webb Space Telescope — to follow-up on this exciting discovery."

The work by Sparks and his colleagues will be published in the Sept. 29 issue of *The Astrophysical Journal*.

The Hubble Space Telescope is a project of international cooperation between NASA and the European Space Agency (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.



## 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>.



*Getting ready for the night's observing and imaging Wednesday evening.*

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](mailto:webmaster@AtlantaAstronomy.org). Also send information on upcoming observing events, meetings, and other events to the webmaster.

## AAC Officers and Contacts

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

## AAC Events are listed in BOLD

- Oct 3rd, Monday: Moon near Venus.
- Oct 9th, Sunday: Moon First Quarter.
- Oct 11th, Tuesday: Mercury and Jupiter less than 1/2 degree apart (Morning).
- Oct 15th, Saturday: **AAC Meeting at Fernbank Science Center 3:00PM.** Uranus at Opposition.
- Oct 16th, Sunday: Full Moon.
- Oct 19th, Wednesday: Moon occulis Aldebaran: Disappears 1:18AM, Reappears 2:27AM (Atlanta).
- Oct 21st, Friday: Orionid Meteor Shower peaks.
- Oct 22nd, Saturday: Moon Last Quarter.
- Oct 27th, Thursday: Saturn, Venus, and Antares form a near straight line.
- Oct 29th, Saturday: **CE Chapter Meeting.**
- Oct 30th, Sunday: New Moon.
- Nov 1st, Tuesday: Thin crescent Moon to right of Venus and Saturn.
- Nov 2nd, Wednesday: Grouping of Moon, Venus, and Saturn.
- Nov 6th, Sunday: Daylight Saving Time ends at 2:00AM.
- Nov 7th, Monday: Moon First Quarter.
- Nov 14th, Monday: Full Moon.
- Nov 17th, Thursday: Leonid Meteor Shower peaks.
- Nov 19th, Saturday: **AAC Meeting at Fernbank Science Center 3:00PM. CE Chapter Meeting.**
- Nov 21st, Monday: Moon Last Quarter.
- Nov 25st, Friday: Grouping of crescent moon, Jupiter, and Spica.
- Nov 29th, Tuesday: New Moon.
- Dec 7th, Wednesday: Moon First Quarter.
- Dec 8th, Thursday: Earliest Sunset in Atlanta: ~5:27PM EST.

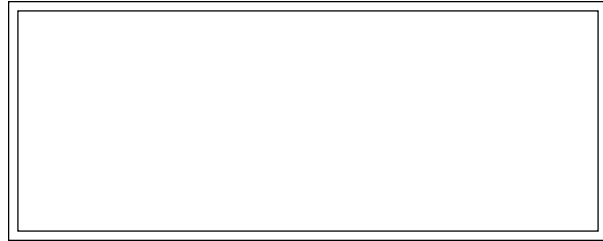
For more event listings see the calendar at [www.atlantaastronomy.org](http://www.atlantaastronomy.org)

## 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](mailto: AstroAtlanta@yahoogroups.com) . To add a subscription, send a message to: [AstroAtlanta-subscribe@yahoogroups.com](mailto: 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](mailto: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 November is Saturday, October 22. 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:

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