

# The Focal Point

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The Atlanta Astronomy Club  
Established 1947  
December 2018

Editor: Tom Faber

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## December Meeting & Holiday Potluck

### (Note Time & Location Change!)

Our Holiday Potluck Dinner and meeting will be on Saturday December 15th starting at 6:00PM and running until about 9:30. The location is in the Lower Level Atrium of the Math & Science Building, Emory University. The address is 400 Dowman Drive, Decatur. Parking is available in the parking deck behind the Math & Science Building. Access is on Oxford Road next to the Barnes & Noble Book Store. You will need to push the button and get a ticket but when you leave you won't need to pay. Enter the lower level of the building from the parking deck. The Atrium will be the large open area.

We plan to begin setup at 6:00PM so we can start eating at 6:30PM. The AAC will provide turkey, ham, soft drinks, and coffee. Please bring a side dish or dessert. In order to make sure we don't wind up with a lot of the same side dishes and desserts please sign onto Perfect Potluck and indicate what dish you will bring. You can sign up for your dish at [www.PerfectPotluck.com/AQGJ8058](http://www.PerfectPotluck.com/AQGJ8058) Name: Holiday Potluck 2018 Password: 7479

Sharon Carruthers 770-941-4640

After we are finished eating we will adjourn to hear a talk by Emory's Dr. Alissa Bans. Please join us for this annual event. We have a lot of very good cooks in our club.

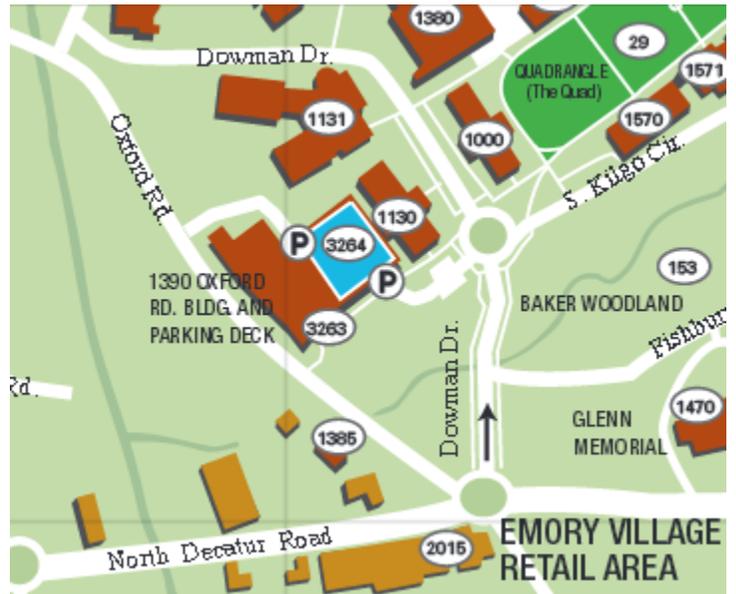
### The Talk

Our guest Speaker will be Dr. Alissa Bans from Emory. Dr Bans will

present a talk about astrobiology. Those of you who attended the November meeting heard a very interesting talk about Alissa's work with the NASA program "Disk Detective"

Dr. Alissa Bans is a lecturer in the Emory University Dept. of Physics. Dr. Bans' primary passion is education and outreach; she's committed to bringing authentic science experiences into the classroom and enjoys working with undergraduate students on research.

Dr. Bans completed her PhD in Astronomy and Astrophysics at the University of Chicago (2013). Prior to joining the faculty at Emory in the fall of 2017, Dr. Bans was a postdoctoral fellow at the Adler Planetarium and a visiting professor at Valparaiso University. Her research interests are focused on how solar systems form and evolve.



The Math & Science Building is number 1131. Parking is available in the parking deck off of Oxford Rd.



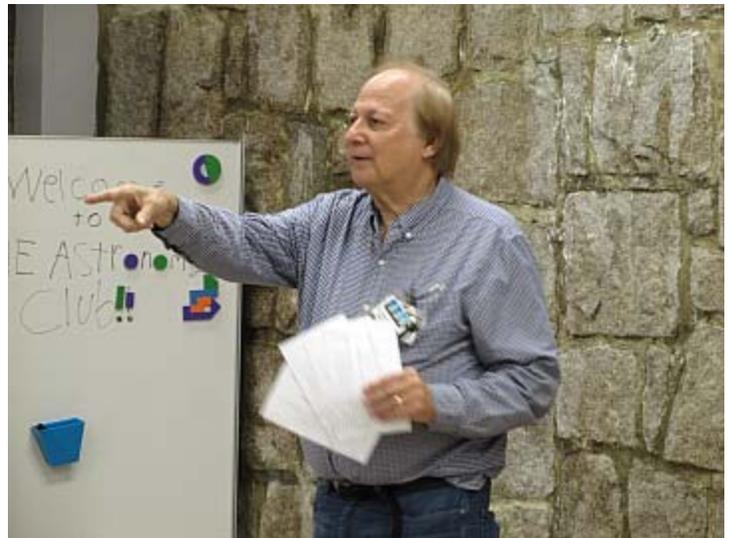
# November Meeting Report

Photos by Tom Faber

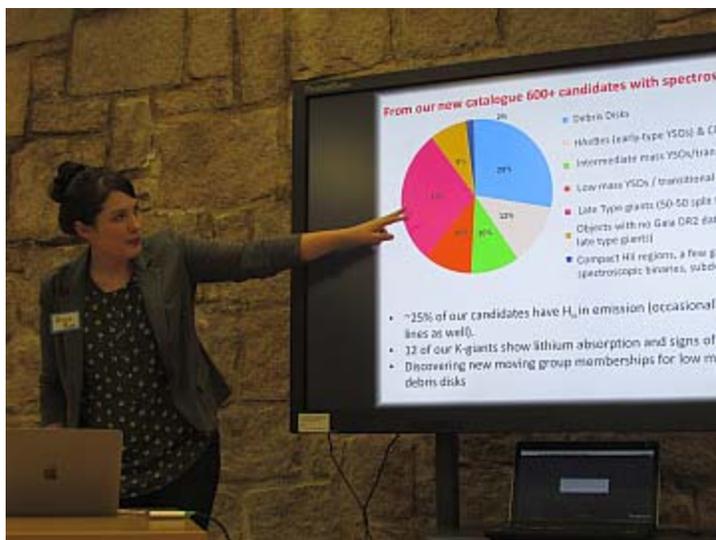
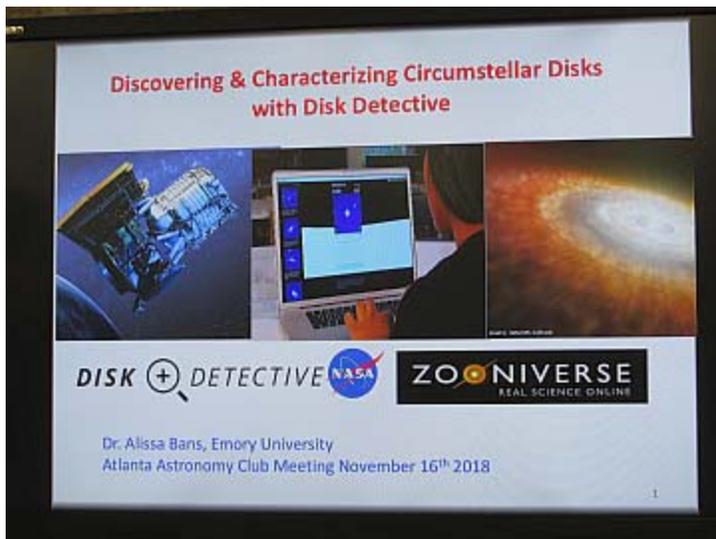
The November meeting of the Atlanta Astronomy Club was held Friday, November 16 in the Resource Room at the Fernbank Science Center. About 22 members and guests were present. Our host was Fernbank's planetary geologist Scott Harris. Scott set up AV equipment for our meeting. AAC president David Lumpkin (middle right) welcomed the attendees and talked about the club for the guests. Other club officers presented updates about upcoming events and other club business. David gave an update on College Night at DAV - February 23, with a rain date of March 23. Peter Macumber talked about the Peach State Star Gaze. The AAC Zombie party is planned at DAV April 4-7.

Then AAC Program Chair Ken Poshedly (bottom right) introduced our quest speaker, Dr. Alissa Bans, a lecturer in the Emory University Dept. of Physics. Alissa explained her work as a team member in the NASA-funded program "Disk Detective", and how it related to her research interests on how solar systems form and evolve.

Afterwards a few attendees went to a nearby restaurant for food and drink. Here are a few photos of the evening's activities.



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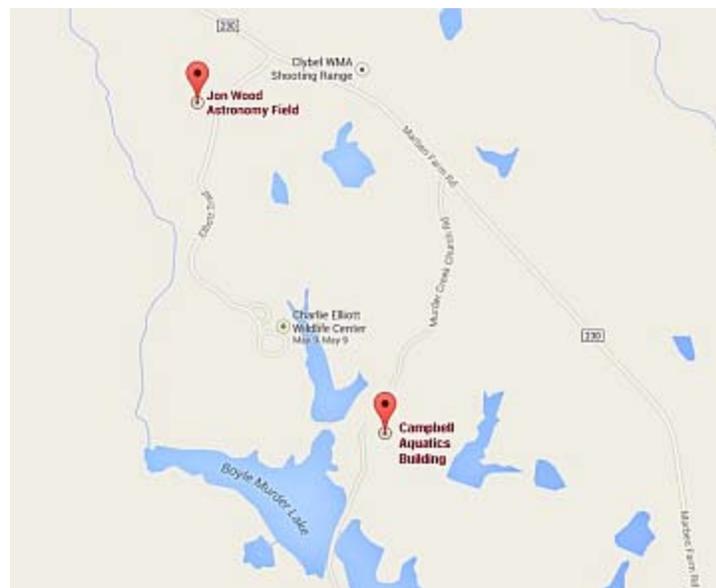


## The December Charlie Elliott Meeting

### Meeting Details

#### Come for the food, stay for the stars!

Join us December 8th, 2018 at 4 p.m. at the Campbell Aquatics Building at Charlie Elliott Wildlife Center for our quarterly potluck! If you have been to one of our potlucks, you're probably looking forward to the good food (banana pudding!!) and good company these events have become known for. Potlucks are great when everyone chips in, and ours are no different. In addition to all of the good things like banana pudding, barbecue, and mac & cheese, we need help with set up and clean up as well. Please take a moment to sign up for something and help out (<https://perfectpotluck.com/meals.php?t=NGRG4786>).



*Credit: Google Maps*

### Perspective

Observing Coordinator Steve Siedentop will be on hand to discuss what you can see and image in the night sky. His short presentation will cover observing from both a visual and a contemplative perspective. Steve started out as an observer, moved into astrophotography and enjoys doing both, finding observing particularly therapeutic. That's a good thing, because he needs all the therapy he can get! Steve will be joined by Astrophotography Coordinator Mark Woolridge who will cover the imaging challenges of the month and tips on how to image them as well as tips for beginners so you don't have to do everything the hard way!

### Observing After the Meeting

All are invited to Jon Wood Astronomy Field immediately after the meeting for observing (weather-permitting).

### Tech Talks

If you have an idea for a 15-30 minute discussion or presentation that you would like to see or would like to give, contact the Charlie Elliott Program Coordinator, Kevin Snedden.

### Upcoming Charlie Elliott Meetings

Upcoming Charlie Elliott meetings will be held on: January 5, February 2, March 9, April 6, May 4, and June 1, 2019. Meetings start approximately 2 hours before sunset. Meeting rooms and start times vary, so please check back for updates or changes at: <http://ceastronomy.org/blog/home> Public stargazing on Jon Wood Astronomy Field follows the meeting, weather permitting.

## The October Charlie Elliott Meeting

Submitted by Mike Mardis, Secretary, Charlie Elliott Chapter

**Meeting Minutes:** 10/13/2018 at the Charlie Elliott Conference Room B Building

Pre-meeting start time: NA

Presenter NA

Topic NA

**Attendees:** Meeting - 27, Field - 17

### Meeting:

Date/Time 10/13/2018 at 1730-2200

Facilitator David Whalen

Agenda: Announcements, Briefings, Q&A / discussion.

Outreach Reported by Dan Thorman - Upcoming session on 11/3/2018 at the Jon Wood field for the Outdoor Woman group

Awards Reported by David Whalen - Ken Poshedly had asteroid named after him in honor of his work on the ALPO Journal

### Briefing Speaker/Topic:

Katie Gordon, PhD "Measuring and Imaging Stars With CHARA Array"

Mark Woolridge "AP Targets"

Ken Poshedly ALPO Journal overview

David Whalen Peach State Star Gaze report

### Handouts:

Ken Poshedly "The Evening Sky Map"

### Other News:

ALPO Ken Poshedly provided an update.

Atlanta Astronomy Club Oct Meeting Ken Poshedly briefed on the upcoming meeting of the AAC at Fernbank on 10/20/2018

Upcoming cosmic event Leonids meteor shower coming in November.

## 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>

## InSight Lands on Mars!

The InSight spacecraft successfully landed on Mars on November 26. The landing point was near Mars' equator on the western side of a flat, smooth plain called Elysium Planitia, about 600km north of where the Curiosity rover is exploring Gale Crater. InSight's purpose is to study the interior of Mars, not the surface. To do this InSight will deploy two instruments onto the Martian surface in the coming weeks. One is a sensitive seismometer that will measure how powerful and frequent internal seismic activity is on Mars is, and where it is located within the structure of the planet. It will also measure how often meteorites impact the surface of Mars.

The second instrument, a heat flow probe, which will help determine: The size of the core, what it is made of, and whether it is liquid or solid., the thickness and structure of the crust, the structure of the mantle and what it is made of, and how warm the interior is and how much heat is still flowing from the interior.

Although imaging is not one of its primary goals, InSight does carry two cameras used to pick a spot on the surface to deploy these instruments and assist in the placement of them. Here are a few early images taken by these cameras.

All images credit: NASA/JPL-Caltech



*The first image taken after landing using InSight's Instrument Context Camera (ICC). The camera's transparent dust cover was still in place when this image was taken. The cover is what makes the "through a port hole" appearance of this image. There is also a lot of dust, kicked up by the landing rockets, visible. Also visible in the image is a good sized rock, and one of InSight's legs and footpad in the lower right.*



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*This is the first image taken by the Instrument Deployment Camera (IDC), located on the robot arm on top of the spacecraft deck. This camera still has its dust cover in place, but there is almost no dust on it since its location on top of the deck protected from the dust blasted out by the descent engines. Part of the robot arm and the instrument grapple are visible in the center and right. The seismometer that will be deployed on the surface is the device on the left.*



*This image taken by the IDC shows the robot arm partially deployed during its post-landing checkout. The sun is in the upper right.*



*Here is an image taken by the ICC after the dust cover was opened. The "port hole" appearance is now gone, but unfortunately it shows that some dust did get under the lens dust cover during the landing. The good news is that this image shows less dust than the one taken right after the dust cover was opened. It looks like the gentle Martian breezes are slowly removing the dust from the lens.*

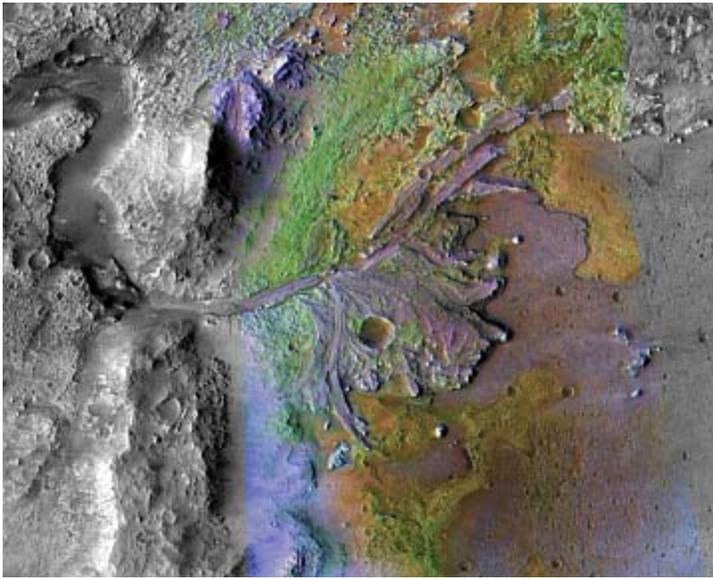


*MarCO-B, one of the experimental Mars Cube One CubeSats, took this image of Mars from about 4,700 miles (7,600 kilometers) away during its flyby of the Red Planet on Nov. 26, 2018. This image was taken at about 12:10 p.m. PST (3:10 p.m. EST) while MarCO-B was flying away from the planet after InSight landed. The structure on the right is the high-gain antenna reflector, and on the left is the antenna's feed horn.*

*The MarCO mission was built to see whether two experimental, briefcase-sized spacecraft could survive the trip to deep space, and the two CubeSats proved more than able. After cruising along behind NASA's InSight for seven months, they successfully relayed data back down to Earth from the lander during its descent to the Martian surface.*

*Turn to page 7 for an illustration of the InSight spacecraft on the Martian surface with its instruments fully deployed. Barring problems this should happen by the end of December.*

*For more information: <https://mars.nasa.gov/insight/mission/overview/>*



*On ancient Mars, water carved channels and transported sediments to form fans and deltas within lake basins. Examination of spectral data acquired from orbit show that some of these sediments have minerals that indicate chemical alteration by water. Here in Jezero Crater delta, sediments contain clays and carbonates. The image combines information from two instruments on NASA's Mars Reconnaissance Orbiter, the Compact Reconnaissance Imaging Spectrometer for Mars and the Context Camera. Credits: NASA/JPL/JHUAPL/MSSS/Brown University*

## NASA Announces Landing Site for Mars 2020 Rover

NASA/JPL News Release Nov. 19, 2018

NASA has chosen Jezero Crater as the landing site for its upcoming Mars 2020 rover mission after a five year search, during which every available detail of more than 60 candidate locations on the Red Planet was scrutinized and debated by the mission team and the planetary science community.

The rover mission is scheduled to launch in July 2020 as NASA's next step in exploration of the Red Planet. It will not only seek signs of ancient habitable conditions – and past microbial life -- but the rover also will collect rock and soil samples and store them in a cache on the planet's surface. NASA and ESA (European Space Agency) are studying future mission concepts to retrieve the samples and return them to Earth, so this landing site sets the stage for the next decade of Mars exploration.

“The landing site in Jezero Crater offers geologically rich terrain, with landforms reaching as far back as 3.6 billion years old, that could potentially answer important questions in planetary evolution and astrobiology,” said Thomas Zurbuchen, associate administrator for NASA's Science Mission Directorate. “Getting samples from this unique area will revolutionize how we think about Mars and its ability to harbor life.”

Jezero Crater is located on the western edge of Isidis Planitia, a giant impact basin just north of the Martian equator. Western Isidis presents some of the oldest and most scientifically interesting landscapes Mars has to offer. Mission scientists believe the 28-mile-wide (45-kilometer) crater, once home to an ancient river delta, could have collected and preserved ancient organic molecules and other potential signs of microbial life from the water and sediments that flowed into the crater billions of years ago.

Jezero Crater's ancient lake-delta system offers many promising sampling targets of at least five different kinds of rock, including clays and carbon-

ates that have high potential to preserve signatures of past life. In addition, the material carried into the delta from a large watershed may contain a wide variety of minerals from inside and outside the crater.

The geologic diversity that makes Jezero so appealing to Mars 2020 scientists also makes it a challenge for the team's entry, descent and landing (EDL) engineers. Along with the massive nearby river delta and small crater impacts, the site contains numerous boulders and rocks to the east, cliffs to the west, and depressions filled with aeolian bedforms (wind-derived ripples in sand that could trap a rover) in several locations.

“The Mars community has long coveted the scientific value of sites such as Jezero Crater, and a previous mission contemplated going there, but the challenges with safely landing were considered prohibitive,” said Ken Farley, project scientist for Mars 2020 at NASA's Jet Propulsion Laboratory. “But what was once out of reach is now conceivable, thanks to the 2020 engineering team and advances in Mars entry, descent and landing technologies.”

When the landing site search began, mission engineers already had refined the landing system such that they were able to reduce the Mars 2020 landing zone to an area 50 percent smaller than that for the landing of NASA's Curiosity rover at Gale Crater in 2012. This allowed the science community to consider more challenging landing sites. The sites of greatest scientific interest led NASA to add a new capability called Terrain Relative Navigation (TRN). TRN will enable the “sky crane” descent stage, the rocket-powered system that carries the rover down to the surface, to avoid hazardous areas.

The site selection is dependent upon extensive analyses and verification testing of the TRN capability. A final report will be presented to an independent review board and NASA Headquarters in the fall of 2019.

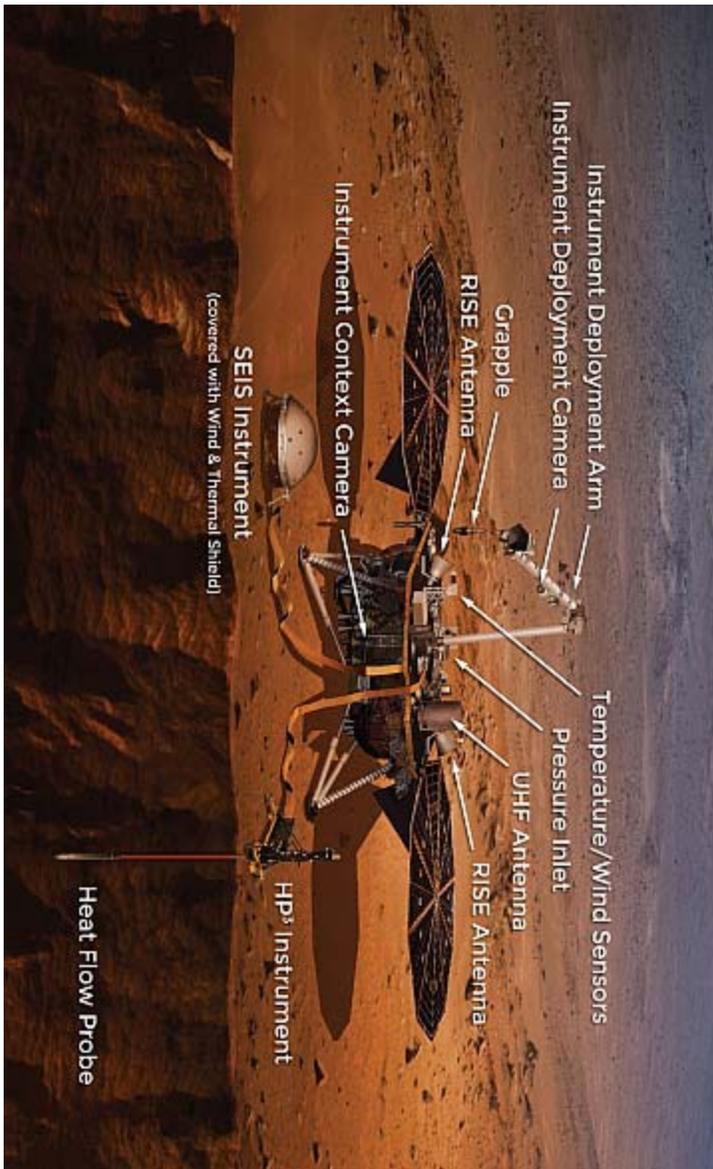
“Nothing has been more difficult in robotic planetary exploration than landing on Mars,” said Zurbuchen. “The Mars 2020 engineering team has done a tremendous amount of work to prepare us for this decision. The team will continue their work to truly understand the TRN system and the risks involved, and we will review the findings independently to reassure we have maximized our chances for success.”

Selecting a landing site this early allows the rover drivers and science operations team to optimize their plans for exploring Jezero Crater once the rover is safely on the ground. Using data from NASA's fleet of Mars orbiters, they will map the terrain in greater detail and identify regions of interest – places with the most interesting geological features, for example – where Mars 2020 could collect the best science samples.

The Mars 2020 Project at JPL manages rover development for SMD. NASA's Launch Services Program, based at the agency's Kennedy Space Center in Florida, is responsible for launch management. Mars 2020 will launch from Cape Canaveral Air Force Station in Florida.

For more information on Mars 2020, visit: <https://www.nasa.gov/mars2020>





## 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/atlaastro>.

### AAC Officers and Contacts

**President:** Dave Lumpkin [President@AtlantaAstronomy.org](mailto:President@AtlantaAstronomy.org)  
**Program Chair:** Ken Poshedly [Programs@AtlantaAstronomy.org](mailto:Programs@AtlantaAstronomy.org)  
**Observing Chair:** Daniel Herron [Observing@AtlantaAstronomy.org](mailto:Observing@AtlantaAstronomy.org)  
**Corresponding Secretary:** Tom Faber  
[Focalpoint@AtlantaAstronomy.org](mailto:Focalpoint@AtlantaAstronomy.org)  
**Treasurer:** Sharon Carruthers [Treasurer@AtlantaAstronomy.org](mailto:Treasurer@AtlantaAstronomy.org)  
**Recording Secretary:** Lilli Lindbeck,  
[Secretary@AtlantaAstronomy.org](mailto:Secretary@AtlantaAstronomy.org)  
**Board Chair:** Sharon Carruthers [Treasurer@AtlantaAstronomy.org](mailto:Treasurer@AtlantaAstronomy.org)  
**Board:** Brigitte Fessele, [bhfessele1@gmail.com](mailto:bhfessele1@gmail.com)  
**Board:** Open  
**Board:** Steve Phillips [sandsphillips@att.net](mailto:sandsphillips@att.net)  
**ALCor:** Ken Olson, [keneolson@yahoo.com](mailto:keneolson@yahoo.com)  
**Elliott Chapter Director:** Mike Shaw [director@ceastronomy.org](mailto:director@ceastronomy.org)  
**Elliott Observing Chair:** Steve Sientop  
[observing@ceastronomy.org](mailto:observing@ceastronomy.org)  
**Elliott Recording Secretary:** Mike Mardis  
[secretary@ceastronomy.org](mailto:secretary@ceastronomy.org)  
**Elliott Program Coordinator:** Kevin Snedden  
[program@ceastronomy.org](mailto:program@ceastronomy.org)  
**Elliott Astrophotography Coordinator:** Mark Wolridge  
**Elliott Chapter ALCor:** David Whalen  
**Elliott Coordinator:** Lacy Mitchell, [Lacy.Mitchell@dnr.ga.gov](mailto:Lacy.Mitchell@dnr.ga.gov)  
**Elliott Webmaster:** Larry Owens [webmaster@CEastronomy.org](mailto:webmaster@CEastronomy.org)  
**Elliott Outreach Coordinator:** Dan Thoman  
[outreach@ceastronomy.org](mailto:outreach@ceastronomy.org)  
**Georgia Astronomy in State Parks:** Sharon Carruthers  
[Treasurer@AtlantaAstronomy.org](mailto:Treasurer@AtlantaAstronomy.org)  
**PSSG Chairman:** Peter Macumber [pmacumber@nightsky.org](mailto:pmacumber@nightsky.org)  
**PSSG Co-Chair:** Open  
**Sidewalk Astronomy:** Open  
[sidewalkastronomy@AtlantaAstronomy.org](mailto:sidewalkastronomy@AtlantaAstronomy.org)  
**Light Tresspass:** Ken Edwards, Contact info TBA  
**Woodruff Observ. Coordinator:** Sharon Carruthers  
[Treasurer@AtlantaAstronomy.org](mailto:Treasurer@AtlantaAstronomy.org)  
**AAC Webmaster:** Daniel Herron  
[Observing@AtlantaAstronomy.org](mailto:Observing@AtlantaAstronomy.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](mailto:webmaster@AtlantaAstronomy.org). Also send information on upcoming observing events, meetings, and other events to the webmaster.

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

## AAC Events are listed in BOLD

- Dec 1st, Saturday: **How to Buy A Telescope, 3 PM - 4:30 PM, Fernbank Science Center**
- Dec 7th, Friday: New Moon.
- Dec 8th, Saturday: **CEA Chapter Meeting & Potluck.** Earliest Sunset in Atlanta: ~5:27PM EST. Moon near Saturn evening.
- Dec 14th, Friday: Geminid Meteor Shower Peak Morning. Moon near Mars evening.
- Dec 15th, Saturday: **AAC Holiday Potluck & Meeting, Emory University Math & Science Building, 6:00-9:30PM.** Moon First Quarter. Geminids Meteor Shower Peak.
- Dec 20th, Thursday: Jupiter near Mercury Morning.
- Dec 21st, Friday: Winter Solstice 5:23PM.
- Dec 22nd, Saturday: Full Moon. Ursid Meteor Shower Peak.
- Dec 29th, Saturday: Moon Last Quarter.
- Jan 1st, Tuesday: Saturn Conjunction with Sun.
- Jan 2nd, Wednesday: Earth at Perihelion.
- Jan 4th, Friday: Latest Sunrise in Atlanta: ~7:42 AM. Quadrantid Meteor Shower Peak.
- Jan 5th, Saturday: **CEA Chapter Meeting.** New Moon.
- Jan 14th, Monday: Moon First Quarter.
- Jan 18th, Friday: **AAC Meeting 8PM at the Fernbank Science Center.**
- Jan 21st, Monday: Full Moon.
- Jan 27th, Sunday: Moon Last Quarter.
- Feb 2nd, Saturday: **CEA Chapter Meeting.**
- Feb 4th, Monday: New Moon.
- Feb 12th, Tuesday: Moon Last Quarter.
- Feb 15th, Friday: **AAC Meeting 8PM at the Fernbank Science Center.**
- Feb 23rd, Saturday: **College Night at the Deerlick Astronomy Village - Contact David Lumpkin for details.**

For more event listings and updates 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 with images separate but Word documents or PDFs are okay. **The deadline for January is Sunday, December 23. Submissions received after the deadline will go in the following issue.**



FIRST CLASS



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Atlanta Astronomy Club  
P.O. Box 76155  
Atlanta, GA 30358-1155  
[www.atlantaastronomy.org](http://www.atlantaastronomy.org)  
On Twitter at <http://twitter.com/atlastro>

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

Newsletter of The Atlanta Astronomy Club, Inc.

