

The Focal Point

The Atlanta Astronomy Club
Established 1947
May 2023

Vol. 35 No. 9

Editor: Tom Faber

Table of Contents

- Page 1...** CE Chapter Meeting, DAV Memorial Day Weekend Picnic
Page 2... Membership Renewal, Dragonfly mission completes PDR.
Page 3... The Orion Nebula by Clay Turner
Page 4... NGC 5371 and Hickson 68 by Richard Jakiel
Page 5... M81 by Dan Llewellyn
Page 6... Hubble 33rd Anniversary image of Star-Forming Region
Page 7... AAC Online, Memberships, Contacts
Page 8... Calendar, AAC List Serv Info, Focal Point Deadline

Charlie Elliott May Meeting

This Month — Once more, as we always do this time of each year, it's time for our annual officers election. In addition, for all those budding (or even advanced) astrophotographers out there, we'll feature CE Astronomy Club Observing Supervisor Dennis Ruzeski who will explain INDI framework and open source image acquisition with an outline of how it works, some hardware options and even a live demo and a discussion of why it's a great option for astrophotographers.

This month, we meet at 6:30 p.m., on Saturday, May 20, 2023, at the Charlie Elliott Wildlife Center Campbell Aquatics Building (See map next page).

Our Program — "INDI Library" is an open source software to control astronomical equipment. It is based on the "Instrument Neutral Distributed Interface" protocol and acts as a bridge between software clients and hardware devices.

Since it is network-transparent, INDI enables you to communicate with your equipment transparently over any network without requiring any 3rd party software. It is simple enough to control a single backyard telescope, and powerful enough to control state of the art observatories across multiple locations. And with Dennis already an IT professional, we're in for a most enjoyable – and informative – ride.

Our Speaker — Dennis is a Buffalo, NY, native (Go Bills!) who has combined passions for technology, photography and astrophotography into an obsession with digitally capturing the night sky. On cloudy nights, you can find him baking, chilling with his two rescue mutts, or playing video games.



DAV Memorial Day Weekend Picnic

Welcome to the Deerlick Astronomy Village Memorial Day Weekend Picnic Potluck!

Meal setup & socializing will begin in the pavilion on Grier's Field at 4 PM on the Sunday afternoon of Memorial Day Weekend (May 28th in 2023). Chow down starts at 5 PM. Anyone interested in DAV is welcome - no membership is required this weekend. You might want to bring a camp chair in case we have an overflow crowd in the pavilion.

Sign up here if you plan to attend & what dish you plan to bring:

<https://www.PerfectPotluck.com/PQFW8601>

Meeting Agenda — First, we'll have opening remarks and general introductions by our club director Steve Siedentop for the benefit of newcomers. Then another most informative presentation of what's up in the sky this (and part of next) month by Observing Supervisor Dennis Ruzeski. And we're also open to those who wish to share any of their own observing experiences or questions.

Following that will be an announcement of who this year's candidates are and a request for any last-minute nominations from those attending the meeting. Afterwards will be the actual voting and announcement of the results.

Following the election results will be Dennis and all you'll need to know about INDI.

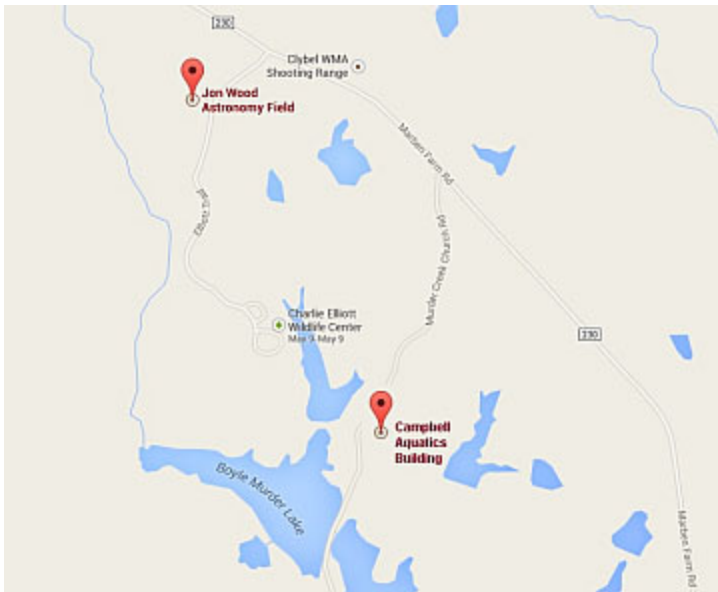
Following the close of Dennis's talk (and weather-permitting), we'll head out (by car) to the nearby Jon Wood Astronomy Field; all are invited to bring your own telescopes or binoculars — or at least your interest in astronomy. Sunset on our meeting night will be at 8:34 p.m. and the Elliott Trail sliding gate for incoming traffic closes at 7 p.m., so be sure to be on the observing field before then. The sooner, the better. While club members already have the Elliott Trail gate lock digital combination, others should be on the field by 7 p.m. The gate opens automatically for all exiting traffic no matter what time it is.

Location, Location, Location — To find the Jon Wood Astronomy Field: Head to Mansfield on Hwy 11, Turn off Hwy 11 onto Marben Farm Road (just south of Mansfield), Turn right onto Elliott Trail, Go a short distance, then turn right onto the dirt driveway that leads up to the Jon Wood Astronomy Field.

Observing on the Jon Wood Astronomy Field

Please refrain from using white lights on the observing field to preserve night vision. Red lights are readily available at department and sporting goods stores in the Atlanta area. As stated above all are invited, however,

Continued on next page.



Credit: Google Maps

to bring their own telescopes or binoculars or at least their interest in astronomy. For more information about Charlie Elliott Wildlife Center, visit: <https://georgiawildlife.com/charlie-elliott-wildlife-center>

A Few Items to Note...

Plan to treat this outing like you would a camping trip and be prepared. Dress appropriately for the weather and the environment, bring snacks and drinks if needed, and plan to take your garbage with you. There is a regularly serviced Porta-Potty on Jon Wood Astronomy Field.

The main gate on Elliott Trail closes to new entry at 7 p.m., but will automatically open for exiting traffic at all times. Therefore, if you plan to observe on the Jon Wood Astronomy Field, please arrive before 7 p.m. or else make arrangements with a club member for access.

Our Monthly Meetings and Public Observing Nights

Our monthly meetings and public observing nights are free and open to the public. Visit the “Our Calendar” tab at the top of the page for our 2023 meeting, observing, and outreach schedule. Start times vary through the year so please check back for details.

View our Full Calendar of all meetings & outreach events here:

<http://ceastronomy.org/blog/outreach/charlie-elliott-astronomy-calendar>

It’s easy to become a member of Charlie Elliott Astronomy!

Pay dues with PayPal here: <http://atlantaastronomy.org/membership/>

March was 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 2023 by the end of March. Please, if you have not already done so, send your renewals to AAC Treasurer Sharon Carruthers, or renew online using PayPal. For more information see:

http://atlantaastronomy.org/?page_id=22

Thank You for your support of the AAC!

NASA’s Dragonfly Team Soars through Major Design Review

JHU/APL News Release - March 24, 2023

Before it can fly its revolutionary rotorcraft over the organic dunes of Saturn’s moon Titan, NASA’s Dragonfly mission team needs to navigate a series of independent reviews to demonstrate the flight project is on track.

Led by the Johns Hopkins Applied Physics Laboratory (APL) in Laurel, Maryland, the team recently crossed a major milestone on that path, successfully passing all of the technical requirements and standards of the weeklong Preliminary Design Review (PDR) that wrapped up on March 3.

“I am very proud of the entire Dragonfly team,” said Bobby Braun, head of APL’s Space Exploration Sector. “APL, NASA’s Goddard Space Flight Center, Lockheed Martin and all of our partners really came together to deliver a credible technical baseline. The fidelity and thought that went into each decision was clearly communicated and forms a solid foundation upon which the team can build.”

The PDR – a requirement for all NASA missions – covers topics such as spacecraft design, mission requirements, science plans, schedule, cost and risk. Held at APL, which manages the mission and will build and operate the Dragonfly lander, the PDR included more than 60 presentations to a panel of external experts tasked with evaluating and assessing mission progress for NASA.

“I’m excited to see all of the Dragonfly mission’s design components coming together,” said Lori Glaze, director of the Planetary Science Division at NASA Headquarters in Washington. “This mission team’s hard work has resulted in the technical design for a spacecraft that can conduct compelling science to increase our understanding of Titan.”



Artist’s impression of the Dragonfly rotorcraft-lander on the surface of Titan, Saturn’s largest moon and a major target in NASA’s quest to assess habitability and search for potential signs of life beyond Earth on worlds across the solar system. (Credit: NASA/Johns Hopkins APL/Steve Gribben)

NASA will consider the board’s findings in a confirmation review later this year, examining Dragonfly’s cost, schedule, and the recommended baseline plan forward.

“The team did a fantastic job,” said Dragonfly Principal Investigator Zibi Turtle, also of APL. “Everyone worked so hard to make sure the review board had a clear idea not just of the great progress we’ve made to close out the design but of our technical challenges, and how we plan to overcome them. We’re incredibly excited to have completed this step, and are ready to continue our work on the next phase of Dragonfly development -- including testing in the large Titan-environment chamber here at APL over the next year.”

Continued on bottom page 4



The Orion Nebula by Clay Turner

This is M42 (The Orion Nebula and environs) taken really deep. This image was made from 90x60 second subs taken with a RASA11 on a CGX mount. Camera was a ZWO ASI2400MC Pro.



NGC 5371 and Hickson 68 by Richard Jakiel

Today's starry adventure is a nice tight galaxy group (Hickson 68, lower right) and the grand design spiral NGC 5371 (upper left). 6-inch RC imaged from DAV. For more information see: <https://delsaert.com/2021/02/28/ngc5371-and-hickson-68/>

Continued from page 2.

Dragonfly centers on a game-changing approach to planetary exploration, employing a rotorcraft-lander to travel between and sample diverse sites on this mysterious world. Dragonfly will characterize the habitability of Titan's environment, investigate the progression of prebiotic chemistry in an environment where carbon-rich material and liquid water may have mixed for an extended period, and even search for chemical indications of whether water-based or hydrocarbon-based life once existed on Titan.

"The PDR is one of a mission's most important milestones," said Jason Kalirai, APL mission area executive for Civil Space. "The Dragonfly team's success is a huge step forward. Dragonfly is the largest space project at APL and requires significant focus and commitment from so many of our talented staff."

Dragonfly is being designed and built under the direction of the APL, which manages the Dragonfly mission for NASA. The team includes key partners at NASA's Goddard Space Flight Center in Greenbelt, Maryland, Lockheed Martin Space in Littleton, Colorado, NASA's Ames Research Center in Silicon Valley, California, NASA's Langley Research Center in Hampton, Virginia, Penn State University in State College, Pennsylvania, Malin Space Science Systems in San Diego, California, Honeybee Robotics in Pasadena, California, NASA's Jet Propulsion Laboratory in Southern California, the French space agency (CNES) in Paris, the German Aerospace Center (DLR) in Cologne, Germany, and the Japan Aerospace Exploration Agency (JAXA) in Tokyo.



Dragonfly team members pause during the mission Preliminary Design Review, held at the Johns Hopkins Applied Physics Laboratory in Laurel, Maryland, from Feb. 27-March 3, 2023. Many other team members attended the review virtually. (Credit: Johns Hopkins APL)

Turn to page 7 for more about Dragonfly.



M81 by Dan Llewellyn

Messier 81. Also known as Bode's Galaxy after Astronomer Johann Elert Bode, who discovered it in 1774. It is considered a grand design spiral and is approximately 11.6 million light years away. The central bulge contains redder stars, and the arms contain bluish stars. I have tried to represent this better with the STC-LPR, which controls the yellow more. Where red and blue meet you will get a slight magenta cast, which also shows up in my image. Taken April 18, 2023 using a c14 Edge at f/7 with a cooled and modified Sony A7s and STC LPR. Stack 30 - 60 second subs.

For more information about M81 see: https://en.wikipedia.org/wiki/Messier_81

Hubble Celebrates 33rd Anniversary with a Peek into Nearby Star-Forming Region

NASA/STScI News Release - April 20, 2023

Astronomers are celebrating NASA's Hubble Space Telescope's 33rd launch anniversary with an ethereal photo of a nearby star-forming region, NGC 1333. The nebula is in the Perseus molecular cloud, and located approximately 960 light-years away.

Hubble's colorful view, showcased through its unique capability to obtain images from ultraviolet to near-infrared light, unveils an effervescent cauldron of glowing gasses and pitch-black dust stirred up and blown around by several hundred newly forming stars embedded within the dark cloud. Hubble just scratches the surface because most of the star birthing firestorm is hidden behind clouds of fine dust – essentially soot – that are thicker toward the bottom of the image. The blackness in the image is not empty space, but filled with obscuring dust.

To capture this image, Hubble peered through a veil of dust on the edge of a giant cloud of cold molecular hydrogen – the raw material for fabricating new stars and planets under the relentless pull of gravity. The image underscores the fact that star formation is a messy process in our rambunctious universe.

Ferocious stellar winds, likely from the bright blue star at the top of the image, are blowing through a curtain of dust. The fine dust scatters the starlight at blue wavelengths.

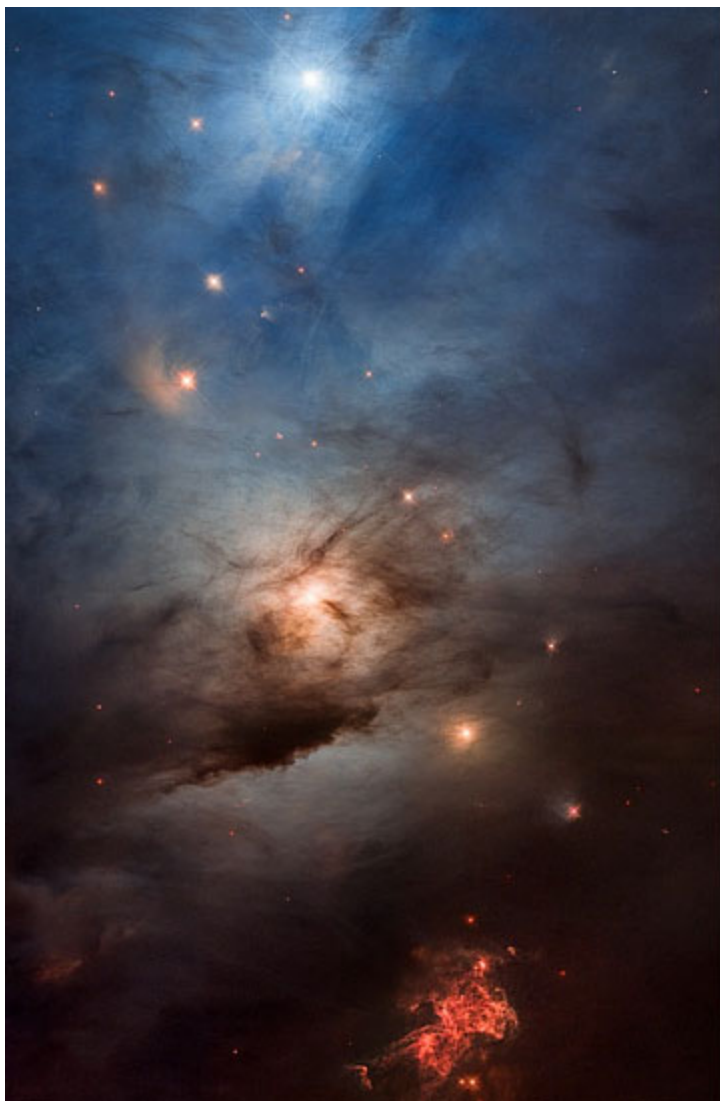
Farther down, another bright, super-hot star shines through filaments of obscuring dust, looking like the Sun shining through scattered clouds. A diagonal string of fainter accompanying stars looks reddish because dust is filtering starlight, allowing more of the red light to get through.

The bottom of the picture presents a keyhole peek deep into the dark nebula. Hubble captures the reddish glow of ionized hydrogen. It looks like a fireworks finale, with several overlapping events. This is caused by pencil-thin jets shooting out from newly forming stars outside the frame of view. These stars are surrounded by circumstellar disks, which may eventually produce planetary systems, and powerful magnetic fields that direct two parallel beams of hot gas deep into space, like a double light saber from science fiction films. They sculpt patterns on the hydrogen cocoon, like laser-light-show tracings. The jets are a star's birth announcement.

This view offers an example of the time when our Sun and planets formed inside such a dusty molecular cloud, 4.6 billion years ago. Our Sun didn't form in isolation but was instead embedded inside a mosh pit of frantic stellar birth, perhaps even more energetic and massive than NGC 1333.

Hubble was deployed into orbit around Earth on April 25, 1990, by NASA astronauts aboard the Space Shuttle Discovery. To date, the legendary telescope has taken approximately 1.6 million observations of nearly 52,000 celestial targets. This treasure trove of knowledge about the universe is stored for public access in the Mikulski Archive for Space Telescopes, at the Space Telescope Science Institute in Baltimore, Maryland.

The Hubble Space Telescope is a project of international cooperation between NASA and ESA. NASA's Goddard Space Flight Center in Greenbelt, Maryland, manages the telescope. The Space Telescope Science Institute (STScI) in Baltimore, Maryland, conducts Hubble and Webb science operations. STScI is operated for NASA by the Association of Universities for Research in Astronomy, in Washington, D.C.



This image are a composite of separate exposures acquired by the WFC3 instrument on the Hubble Space Telescope. Several filters were used to sample wide and narrow wavelength ranges. The color results from assigning different hues (colors) to each monochromatic (grayscale) image associated with an individual filter. In this case, the assigned colors are: Blue: F475W, Green: F606W, Red: F657N and F814W

Credits: Science: NASA, ESA, STScI. Image Processing: Varun Bajaj (STScI), Joseph DePasquale (STScI), Jennifer Mack (STScI)



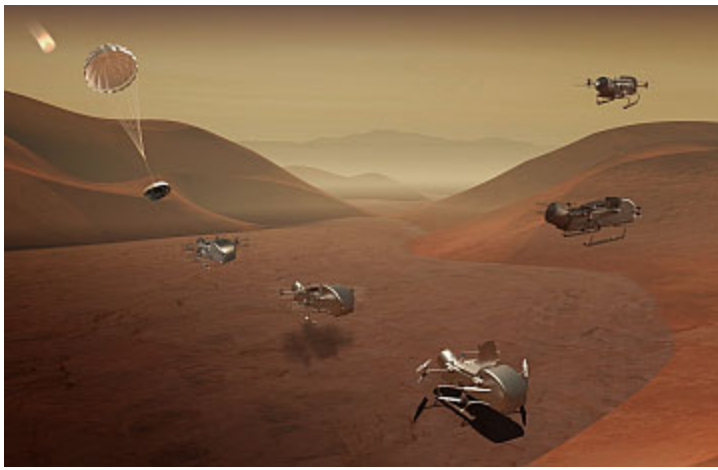


Image Credit:: Johns Hopkins APL

Flying to Sites of Interest Across Titan

Making multiple flights, the Dragonfly dual-quadcopter will explore a variety of locations on Titan. The dense, calm atmosphere and low gravity make flying an ideal way to travel to different areas of the moon – studies from the late-1990s onward identified aerial mobility, such as that provided by helicopters, balloons, and airplanes, as a key enabler for Titan exploration. In under an hour, Dragonfly will cover tens of miles or kilometers, farther than any planetary rover has traveled. With one hop per full Titan day (16 Earth days), the rotorcraft will travel from its initial landing site to cover areas several hundred kilometers away during the planned two-year mission. Despite its unique ability to fly, Dragonfly would spend most of its time on Titan's surface making science measurements.

Unable to use solar power under Titan's hazy atmosphere, Dragonfly will use a Multi-Mission Radioisotope Thermoelectric Generator (MMRTG), like the durable Curiosity rover on Mars. Flight, data transmission, and most science operations will be planned during Titan's daytime hours (eight Earth days), giving the rotorcraft plenty of time during the Titan night to recharge.

The **Atlanta Astronomy Club, Inc.**, one of the South's largest and oldest astronomical society, meets at **3:00 P.M.** on the 3rd 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/atlaastro>.

AAC Officers and Contacts

President: Dave Lumpkin President@AtlantaAstronomy.org
Program Chair: Open Programs@AtlantaAstronomy.org
Observing Chair: Daniel Herron Observing@AtlantaAstronomy.org
Corresponding Secretary: Tom Faber
Focalpoint@AtlantaAstronomy.org
Treasurer: Sharon Carruthers Treasurer@AtlantaAstronomy.org
Recording Secretary: Lilli Lindbeck,
Secretary@AtlantaAstronomy.org
Board Chair: Sharon Carruthers Treasurer@AtlantaAstronomy.org
Board: Brigitte Fessele, bhfessele1@gmail.com
Board: Open
Board: Steve Phillips sandsphillips@att.net
ALCor: Ken Olson, keneolson@yahoo.com
Elliott Chapter Director: Steve Siedentop
director@ceastronomy.org
Elliott Observing Supervisor: Dennis Ruseski
observing@ceastronomy.org
Elliott Recording Secretary: Daniel de la Reza
secretary@ceastronomy.org
Elliott Program Coordinator: Steve Siedentop
program@ceastronomy.org
Elliott Outreach Coordinator: Marie Lott
outreach@ceastronomy.org
Elliott Astrophotography Coordinator: Mike Mardis
Elliott Chapter AL Liaison: David Whalen
Elliott Facilities Coordinator: Matt Harvey
facilities@CEastronomy.org
Georgia Astronomy in State Parks: Sharon Carruthers
Treasurer@AtlantaAstronomy.org
PSSG Chairman: Peter Macumber pmacumber@nightsky.org
PSSG Co-Chair: Open
Sidewalk Astronomy: Open
sidewalkastronomy@AtlantaAstronomy.org
Light Tresspass: Ken Edwards, Contact info TBA
Woodruff Observ. Coordinator: Sharon Carruthers
Treasurer@AtlantaAstronomy.org
AAC Webmaster: Daniel Herron

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

AAC Events are listed in BOLD

- May 5th, Friday: Full Moon. Eta Aquarids Meteor Shower peaks.
- May 12th, Friday: Moon Last Quarter.
- May 19th, Friday: New Moon.
- May 20th, Saturday: **CEA Chapter Meeting 6:30PM.**
- May 27th, Saturday: Moon First Quarter.
- May 28th, Sunday: Deerlick Astronomy Village Memorial Day Weekend Picnic Potluck.
- June 1st, Thursday: Venus, Pollux, Castor form a near straight line evening.
- June 2nd, Friday: Mars in Beehive (M44) evening.
- June 3rd, Saturday: Full Moon.
- June 10th, Saturday: Moon Last Quarter.
- June 13th, Tuesday: Venus next to Beehive (M44) evening.
- June 14th, Wednesday: Moon near Jupiter morning.
- June 17th, Saturday: **CEA Chapter Meeting 7:00PM.**
- June 18th, Sunday: New Moon.
- June 21st, Wednesday: Moon near Venus and Mars evening. Summer Solstice 10:57AM.
- June 26th, Monday: Moon First Quarter.
- July 3rd, Monday: Full Moon.
- July 9th, Sunday: Moon Last Quarter.
- July 15th, Saturday: **CEA Chapter Meeting 7:00PM.**
- July 17th, Monday: New Moon.
- July 25th, Tuesday: Moon First Quarter.
- Aug 1st, Tuesday: Full Moon.

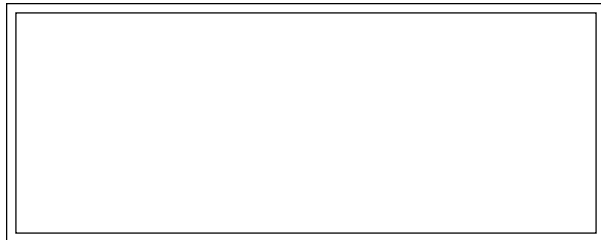
For more event listings and updates see the calendar at www.atlantaastronomy.org

Atlanta Astronomy Club Listserv

Because of the shutdown of Yahoo Groups, the Atlanta Astronomy Club Mailing List has been moved to IO Groups. You can visit the group, start reading messages and posting them here: <https://groups.io/g/AtlantaAstronomyClub>.

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 with images separate but Word documents or PDFs are okay. **The deadline for June is Wednesday, May 31. Submissions received after the deadline will go in the following issue.**



FIRST CLASS



www.betagg.com



Newsletter of The Atlanta Astronomy Club, Inc.



The Focal Point

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

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