

The Focal Point

The Atlanta Astronomy Club
Established 1947
August 2011

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Editor: Tom Faber

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August General Meeting

Join us for the August meeting of the Atlanta Astronomy Club on Friday August 19th at 8PM. Refreshments will be provided starting around 7:30PM. The location of the meeting is in the planetarium in the Math and Science Building on the Emory University Campus. There will be a talk by a guest speaker, and announcements of upcoming club events. The meeting will run for about 2 hours. If you have any announcements you want to make during the meeting, please contact our President Mark Banks, so that he can schedule the time for you during the meeting. His contact information is on page 7.

The Program:

Former AAC President (1997-1998) and Observing Chair (1995-1996) Art Russell visits us from his current home of Jacksonville to present a talk on a topic TBA. This month our meeting will be in the planetarium in the Math and Science Building. The best place to park is the parking deck next to the Math & Science building. It provides easy access to the Math and Science Building. There is a Barnes and Noble and other shops on the top floor of the parking deck, so there are some nearby things to do while waiting for the meeting to start. This parking deck can be accessed from Dowman Drive or from Oxford Road. For maps of the campus see <http://map.emory.edu>.

Upcoming AAC Meetings:

Future meetings are scheduled for September 9, October 14, November 11, and December 10 (Christmas potluck dinner). Meeting locations, speakers, and talk topics will be announced at a later date.



Photo by Art Russell

The Peach State Star Gaze!

The next Peach State Star Gaze is coming soon! The AAC's annual star party will again be held at the Deerlick Astronomy Village near Sharon, GA, and run from Sunday, September 25 to Sunday, October 2 (new moon is September 27). DAV has an 11-acre field that has room for RVs, campers, and tents. Limited power is available on the field. Full rest rooms with showers are available along with a 40' x 40' pavilion and gas BBQ grill. This year Micki's Kitchen returns to provide us with coffee, refreshments and meals (and brownies!). The Atlanta Astronomy Club's 24" telescope will be set up on the field and AAC's clubhouse will be open. We will have speakers, workshops, and vendors. Please visit us at AtlantaAstronomy.org/pssg/ for details and registration.



The Deerlick Astronomy Village, located about 100 miles east of Atlanta and 50 miles west of Augusta, has some of the darkest skies in the state.



The AAC field at the DAV during the 2010 PSSG - Photo by Tom Faber.

July General Meeting Minutes

by Pixie Bruner, AAC Recording Secretary

Photos by Tom Faber

The Atlanta Astronomy Club held its May meeting on Friday, July 15th at Atlanta Freethought Society Hall (AFSH) in Smyrna, GA (photo below).



Snacks were hosted by AAC President Mark Banks and we thank him for his time and effort to provide snacks and soft drinks to hungry stargazers. The meeting was started at 8:00 PM by President Mark Banks (photo below). The new meeting location was well received.



There were a total 30 members and guests in attendance. A sidewalk astronomy event conflicted with the meeting this month. Our speaker for the evening was AAC's Art Zorka who presented and introduced the NASA Night Sky Network (photo top right). It was an interactive and incredibly fun presentation and everyone had such a great time. Art is a fine speaker and accomplished amateur astronomer and we are proud to have Art serving the AAC as our liaison with the NASA Night Sky Network, a great educational and community outreach program. Thank you, Art!

AAC Alumnus Art Russell is our speaker for August. The August meeting will be held at the Planetarium on Emory Main Campus in the Math and Science building on Friday August 19th at 8pm. September's meeting on the 9th will be held at AFSH in Smyrna again and Dan Llewellyn will be



presenting on the controversial "Holographic Universe".

There is a critical shortage of volunteers for outreach events and for the Peach State Star Gaze 2011. Woodruff Boy Scout needs volunteers right away to help scouts earn their astronomy badge and show them the skies through a telescope. Upcoming events of interest to local and visiting astronomers are always listed in *The Focal Point*, our NASA Night Sky Network page, and on the AAC website. Volunteers are always welcome and needed for events so please give back with your free time to show your appreciation and love of the skies. Every hour of time you share with the community counts if recording in your free NASA Night Sky Network membership towards getting lots of great stuff and recognition from NASA so if you need a carrot on a stick to make you volunteer, there you go!

We look forward to seeing you next month and wish you clear skies!

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> You may also contact the AAC's Astronomical League Correspondent Art Zorka for more information about the AL's Observing Clubs at artzorka@yahoo.com or by phone at 404-633-8822.

The Next AAC Board Meeting

The next Board meeting of the Atlanta Astronomy Club is scheduled for Sunday, August 28th at 3PM at Richard Jakiel's Mars House in Lithia Springs. Contact President Mark Banks or Board Chair Daniel Herron for more information about the meeting agenda, and Rich for directions.

July Charlie Elliott Chapter Minutes

by Marie Lott, CE Chapter Recording Secretary

The July meeting of the Charlie Elliott Chapter of the Atlanta Astronomy Club was held on Saturday, July 2, in the Visitor Center at 5 PM with twenty five adults, four teens and one child in attendance.

Outreach coordinator Theo Ramakers asked members to please update their volunteer hours on the Night Sky Network, by July 5th if possible, for their quarterly report. Frank Garner & Theo Ramakers were awarded a certificate of appreciation from Conyers Middle School for their three day solar outreach program for sixth graders in April.

Chapter director Ken Poshedly presented "The Moon, What You Won't See Tonight" reviewing the features and phases of the moon. Larry Owens followed with a brief but informative talk about the basics of lunar astrophotography.

Observing supervisor Steven Philips presented "Observing 101", a highlight of current sun, moon and planet rise and set times, observing targets and challenges. In July, Saturn will be visible until just after midnight. Jupiter, Mars, and Venus will rise between 2:30 and 5:30 AM. Steven reported that on the evening of July 7th the Purbach Cross, a.k.a. the 'Lunar X', would be visible briefly on the lunar terminator near the craters Aliacensis, Werner and Purbach. [Note added after the meeting: thanks to Steven's alert, Sharon Carruthers, Art Zorka & Marie Lott were able to watch this transient lunar event unfold with the Boy Scouts at Woodruff on July 7th. Very cool! See <http://bit.ly/mS4Usi> for photos and more details about this phenomenon.]

Small Telescope/Binocular Target List for July:

Galaxies M51 (Whirlpool), M63 (Sunflower), M94 (Starburst), M101 (Pinwheel) and NGC 6946 (Fireworks); globular clusters M3, M5, M12 & M13; planetary nebula M57 (Ring); and double stars Porrima (Virginis), Rasalgethi (Herculis) & Izar (Boötis).

In keeping with the spirit of the Fourth of July holiday, the featured object for the month is NGC 6946 - The Fireworks Galaxy. This is an intermediate barred spiral galaxy located on the border between the constellations Cepheus and Cygnus, approximately 22 million light years away. It was discovered by William Herschel in 1798. Numerous supernova and star



The Fireworks Galaxy (NGC6946) - From Wikipedia Commons

forming events have been discovered in this ancient but bar-driven nuclear starburst galaxy.

After the meeting several scopes were set up on the observing field while fourteen club members waited for clouds to clear.

The next meeting of the chapter will be Saturday, July 30, 2011 at 5 PM in the Charlie Elliott Visitor Center. Rich Jakiel will present a talk entitled "Astro-Imaging on a Budget".

CE Chapter July Outreach Programs

by Theo Ramakers - <http://ceastronomy.org/tramakers>

The Chapter did 5 outreach events in July. Two were Solar events, and three evening presentations and night sky observing. The Garden Club of Georgia was back this year for the 4th time and Charlie Elliott Wildlife Center did expand their summer camps, but ended up cancelling one. So we were busy.



The first half of the year was very rewarding in regard to reaching out to interested groups and schools. We did a total of 38 events in the first 6 months of 2011 and it looks like the second half will become busy also. Our ranking on the Night sky Network has moved to number 4. A sign that we are doing something right. We also have provided information for new tool kits to the NSN to help expand on our "hands-on" approach to astronomy and space exploration, and are working with LifeLabs on structuring their program to help students of Middle and High Schools.



This month we also have expanded the Chapter's website with a page which explains in words and pictures, what the Chapter can do to make astronomical concepts easier to understand for students and other groups. The visitor can also request an event on-line or via email. Follow the link from the "outreach" page (<http://ceastronomy.org/outreach>) on the chapter's website to the page that explains the program.

So, I am repeating what I have been saying all along: If you have a little extra time join us in reaching out. Federal and State Budget constraints make it even harder for schools and groups to teach our children. But the coming generation needs some great and smart people in Astronomy, Physics, and Space Exploration, and you could be the catalyst that makes the difference, even if it is for one child only!!

2012 - DOOM or DUMB?

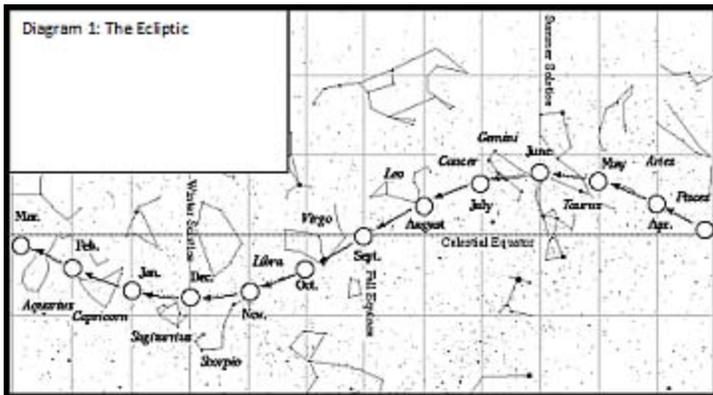
By Sharon Carruthers, AAC Treasurer

Part 6 - The Galactic Alignment

In Part 5, The Mayan Calendar Connection, we saw that the Doomsday scenario, proposed by Coe & Jenkins, involved a galactic alignment on Dec 21st, 2012 (the winter solstice).

There are two versions of this galactic alignment: (1) an alignment within our Solar System (of the Sun, Earth and the center of the Milky Way Galaxy); and (2) an alignment of the Solar System with the galactic equator of the Milky Way.

(1) The alignment within our Solar System: As the Earth orbits the Sun in one year (using the convention that the Earth stands still and the Sun moves), it passes eastwards through the 12 constellations of the Zodiac on a path called the Ecliptic. Because the Earth has a 23½ degree tilt, the Ecliptic is a sine curve which is 23 ½ degrees above (the Summer Solstice) and below (the Winter Solstice) the Celestial Equator, and crosses the Celestial Equator twice, on the Spring and Fall Equinoxes. See Diagram 1.



The ecliptic also has a slow shift against the background stars due to the *Precession of the Equinox*. The Earth has a “wobble”, like a slowing top, due to tug of tidal forces from the Sun and Moon. The wobble is shifting the constellations eastward behind the Sun over 26,000 years.

In 3,000 BC, Thuban in Draco was the pole star and the Spring equinox was in Aries. It is now currently in Pisces and moving into Aquarius. The Winter Solstice at that time was in Capricornius and is now currently in Sagittarius, where the center of our Milky Way galaxy is located.

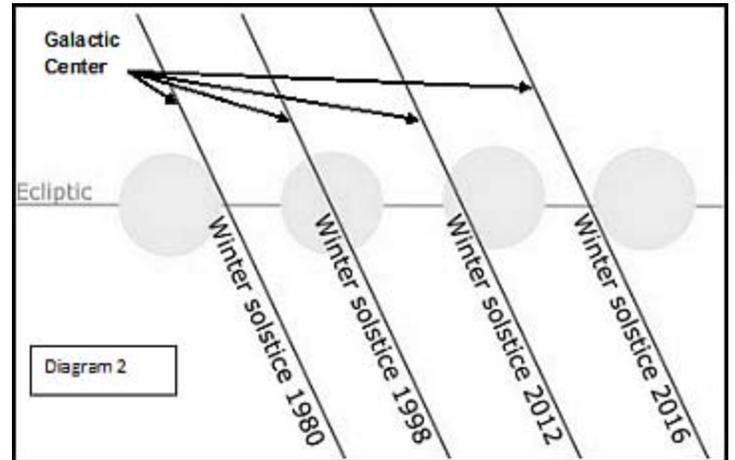
The basic premise of the 2012 Doomsday scenario is that when the Earth and Sun line up on the Winter Solstice (Dec 21st, 2012) they will also be lining up with our galactic center. Then either some great cosmic force will be activated, bringing in an “age of enlightenment” (the New Age scenario) or the immense gravitational forces from the black holes at the center of our galaxy, lined up with the gravity of the Sun and Earth, will cause catastrophic upheavals on Earth.

John Major Jenkins believes that the Maya based their calendar on observations of the Great (or Dark) Rift, a band of dark dust clouds in the Milky Way. They chose to end their calendar on December 21st, 2012 when the Sun lined up with the Great Rift, and a new spiritual age would begin.

Unfortunately these scenarios are based less on actual astronomy and much more on mysticism.

Mayan scholars dispute Jenkins analysis of the Mayan calendar, stating that there is “little evidence, archaeological or historical, that the Maya placed any importance on solstices or equinoxes”, were probably not aware of the Precession, and had no apocalyptic prophecies.

The galactic equator is an approximation as the edges of the galaxy are nebulous and hard to define so the center of the galaxy is an arbitrarily defined point. The Sun’s apparent path is not near the this point, but rather several degrees above it. The Sun is ½ degree wide and takes 36 years for it to precess completely through one specific point in the sky. In 1980, the eastern limb of the Sun was on the galactic center on the Winter solstice; in 2016, the western limb will be on it; and the center of the Sun was directly over it in 1998. See Diagram 2.



One must decide what the “significant” point on the Sun would be - the eastern limb? The western limb? The center? In any case, the sun has passed completely over the galactic center in each of these years, but a few days after December 21st. And no disasters have befallen the world. One must add an element of metaphysical “woo” to think that the cosmos will elect to unleash the gravitational effects of the Milky Way only on the Winter Solstice in 2012 but held back in previous years.

(2) The alignment of the Solar System with the galactic equator of the Milky Way: If you imagine our galaxy is a flattened Merry-Go-Round, our Solar System would be one of the horses moving up and down across the plane of the galactic equator over the course of 20 -25 millions of years. This scenario posits that when the Solar System is aligned with the galactic equator, the immense gravitational concentration will cause catastrophes on Earth.

Scientists have hypothesized that there may be “disc tides” when the Solar System enters the galactic disc that disturb the Oort Cloud and increase the comets in our inner Solar System by a factor of four (according to computer modeling), resulting in mass extinctions every 26 million years. The evidence from the fossil record of repeated mass extinctions hasn't been proven, so this is mere speculation.

It is unlikely that any gravitational effects from the galaxy strong enough to impact the Earth would not also rip the entire Solar System apart. Of course, there is no evidence that this has ever happened.

The alignment with the galactic plane takes place over tens of millions of years, and could never be timed to an exact day or year. There is evidence that the Sun passed through the galactic equator only three million years ago and is now moving upwards away from it.

Next month: 2012 - DOOM OR DUMB? Part 7 - Other 2012 Scenarios (Opinions expressed in this series are those of the author; not of the Atlanta Astronomy Club, its Board, its membership, nor the editors of the *Focal Point*.) *Editor's Note: But they do happen to be my opinion.*

Hubble Discovers Another Pluto Moon

NASA/STScI News Release - July 20, 2011

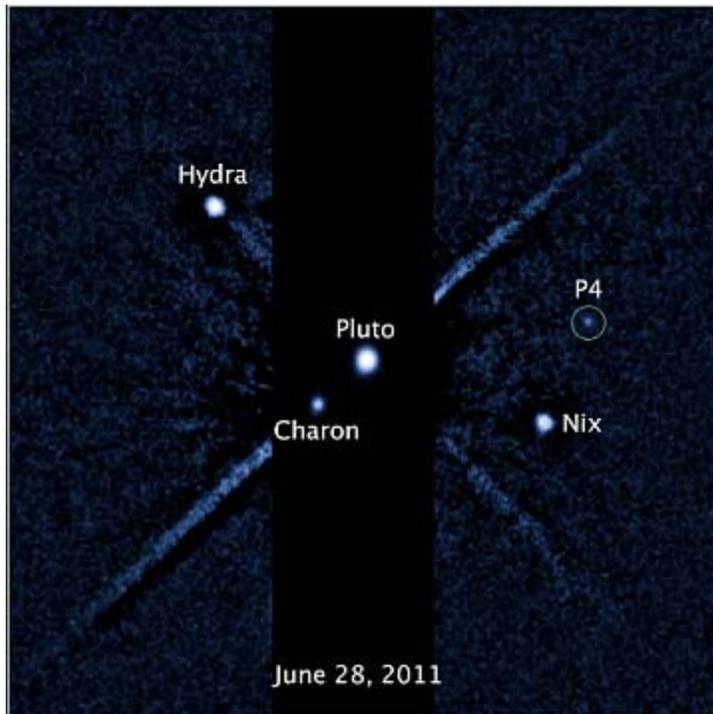
Hubble Space Telescope's keen vision has found yet another moon orbiting the distant, icy dwarf planet Pluto. This discovery expands the size of Pluto's known satellite system to four moons. The tiny, new satellite — temporarily designated P4 — was uncovered in a Hubble survey searching for rings around the frigid dwarf planet.

The new moon is the smallest moon yet discovered around Pluto. It has an estimated diameter of 8 to 21 miles (13 to 34 km). By comparison, Charon, Pluto's largest moon, is 746 miles (1,200 km) across, and the other moons, Nix and Hydra are in the range of 20 to 70 miles in diameter (32 to 113 km).

"I find it remarkable that Hubble's cameras enabled us to see such a tiny object so clearly from a distance of more than 3 billion miles (5 billion km)," said Mark Showalter of the SETI Institute in Mountain View, Calif., who led this observing program with Hubble.

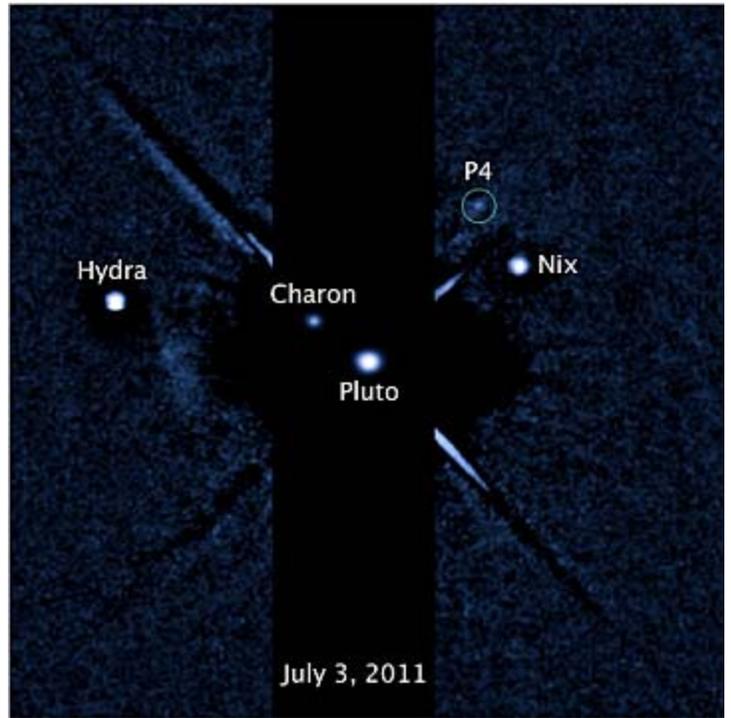
The finding is a result of ongoing work to support NASA's New Horizons mission, scheduled to fly through the Pluto system in 2015. The mission is designed to provide new insights about worlds at the edge of our solar system. Hubble's mapping of Pluto's surface and discovery of its satellites have been invaluable to planning for New Horizons' close encounter.

"This is a fantastic discovery," said New Horizons' principal investigator Alan Stern of the Southwest Research Institute in Boulder, Colo. "Now that we know there's another moon in the Pluto system, we can plan close-up observations of it during our flyby." Space Telescope Science Institute director's discretionary time was allocated to make the Hubble observations.



The new moon is located between the orbits of Nix and Hydra, which Hubble discovered in 2005. Charon was discovered in 1978 at the U.S. Naval Observatory and clearly resolved by Hubble in 1990 as a separate body from Pluto.

The dwarf planet's entire moon system is believed to have formed by a collision between Pluto and another planet-sized body early in the history of the solar system. The smashup flung material into orbit around Pluto, which then coalesced into the family of satellites now seen.

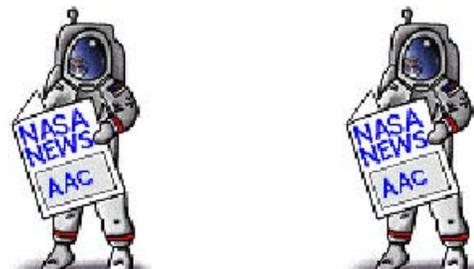


These two images, taken about a week apart by NASA's Hubble Space Telescope, show four moons orbiting the distant, icy dwarf planet Pluto. The green circle in both snapshots marks the newly discovered moon, temporarily dubbed P4, found by Hubble in June. The new moon lies between the orbits of Nix and Hydra, two satellites discovered by Hubble in 2005. It completes an orbit around Pluto roughly every 31 days. P4, Nix, and Hydra are so small and so faint that scientists combined short and long exposures to create this image of Pluto and its entire moon system. The speckled background is camera "noise" produced during the long exposures. The linear features are imaging artifacts. Credit: NASA, ESA, and M. Showalter (SETI Institute)

Lunar rocks returned to Earth from the Apollo missions led to the theory that our Moon was the result of a similar collision between Earth and a Mars-sized body 4.4 billion years ago. Scientists believe material blasted off Pluto's moons by micrometeoroid impacts may form rings around the dwarf planet, but the Hubble photographs have not detected any so far.

"This surprising observation is a powerful reminder of Hubble's ability as a general purpose astronomical observatory to make astounding, unintended discoveries," said Jon Morse, astrophysics division director at NASA Headquarters in Washington.

P4 was first seen in a photo taken with Hubble's Wide Field Camera 3 on June 28, 2011. It was confirmed in subsequent Hubble pictures taken on July 3 and July 18. The moon was not seen in earlier Hubble images because the exposure times were shorter. There is a chance it appeared as a very faint smudge in 2006 images, but was overlooked because it was largely obscured by an imaging artifact, called a diffraction spike.



“We are on our way, and early indications show we are on our planned trajectory,” said Jan Chodas, Juno project manager at NASA’s Jet Propulsion Laboratory in Pasadena, Calif. “We will know more about Juno’s status in a couple hours after its radios are energized and the signal is acquired by the Deep Space Network antennas at Canberra.”

Juno will cover the distance from Earth to the moon (about 250,000 miles) in less than one day’s time. It will take another five years and 1,740 million miles to complete the journey to Jupiter. The spacecraft will orbit the planet’s poles 33 times and use its collection of eight science instruments to probe beneath the gas giant’s obscuring cloud cover to learn more about its origins, structure, atmosphere and magnetosphere, and look for a potential solid planetary core.

With four large moons and many smaller moons, Jupiter forms its own miniature solar system. Its composition resembles that of a star, and if it had been about 80 times more massive, the planet could have become a star instead.

“Jupiter is the Rosetta Stone of our solar system,” said Scott Bolton, Juno’s principal investigator from the Southwest Research Institute in San Antonio. “It is by far the oldest planet, contains more material than all the other planets, asteroids and comets combined, and carries deep inside it the story of not only the solar system but of us. Juno is going there as our emissary -- to interpret what Jupiter has to say.”

Juno’s name comes from Greek and Roman mythology. The god Jupiter drew a veil of clouds around himself to hide his mischief, and his wife, the goddess Juno, was able to peer through the clouds and reveal Jupiter’s true nature.

The NASA Deep Space Network -- or DSN -- is an international network of antennas that supports interplanetary spacecraft missions and radio and radar astronomy observations for the exploration of the solar system and the universe. The network also supports selected Earth-orbiting missions.

JPL manages the Juno mission for the principal investigator, Scott Bolton, of Southwest Research Institute in San Antonio. The Juno mission is part of the New Frontiers Program managed at NASA’s Marshall Space Flight Center in Huntsville, Ala. Lockheed Martin Space Systems, Denver, built the spacecraft. Launch management for the mission is the responsibility of NASA’s Launch Services Program at the Kennedy Space Center in Florida. JPL is a division of the California Institute of Technology in Pasadena.

For more information about Juno, visit <http://www.nasa.gov/juno> and <http://missionjuno.swri.edu>.

Atlanta Astronomy Club Online

While this newsletter is the official information source for the Atlanta Astronomy Club, it is only up to date the day it is printed. So if you want more up to date information, go to our club’s website. The website contains pictures, directions, membership applications, events updates and other information. <http://www.atlantaastronomy.org> You can also follow the AAC on Facebook by joining the AAC group, and on Twitter at <http://twitter.com/atlastro>.

AAC Officers and Contacts

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Sidewalk Astronomy: Brad Isley
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Light Trespass: Open - Contact Mark Banks if you would like to volunteer for this position

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

AAC Webmaster: Daniel Herron observing@AtlantaAstronomy.org

The **Atlanta Astronomy Club, Inc.**, the South’s largest and oldest astronomical society, meets at **8:00 P.M.** on the Friday closest to full moon of each month at Emory University’s White Hall or occasionally at other locations or times. Membership fees are **\$30 (\$42)** for a family or single person membership. College Students membership fee is **\$15 (\$27)**. These fees are for a one year membership (\$12 per year extra charge to receive a printed *Focal Point* by mail).

Magazine subscriptions to *Sky & Telescope* or *Astronomy* can be purchased through the club for a reduced rate. The fees are **\$33** for *Sky & Telescope* and **\$34** for *Astronomy*. Renewal forms will be sent to you by the magazines. Send the renewal form along with your check to the Atlanta Astronomy Club treasurer.

The Club address: Atlanta Astronomy Club, Inc., P.O. Box 76155, Atlanta, GA 30358-1155.

AAC Web Page: <http://www.AtlantaAstronomy.Org>. Send suggestions, comments, or ideas about the website to webmaster@AtlantaAstronomy.org. Also send information on upcoming observing events, meetings, and other events to the webmaster.

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

AAC Events are listed in BOLD

- August 6th, Saturday: Moon First Quarter.
- August 13th, Saturday: Full Moon. Perseid Meteors.
- August 16th, Tuesday: Venus Superior Conjunction.
- August 17th, Wednesday: Mercury Inferior Conjunction.
- August 19th, Friday: **AAC Meeting at Emory Math & Science Bldg planetarium, 8PM.**
- August 21st, Sunday: Moon Last Quarter.
- August 22nd, Monday: Neptune at Opposition.
- August 26th, Friday: **September Focal Point Deadline.**
- August 27th, Saturday: **Charlie Elliott Chapter Mtg - 5PM.**
- August 28th, Sunday: **BoD Meeting 3PM.** New Moon.
- September 4th, Sunday: Moon First Quarter.
- September 9th, Friday: **AAC Meeting at location TBA, 8PM.** Mercury near Regulus.
- September 12th, Monday: **October Focal Point Deadline.** Full Moon.
- September 20th, Tuesday: Moon Last Quarter.
- September 23rd, Friday: Equinox at 5:05AM.
- September 24th, Saturday: **Charlie Elliott Chapter Mtg - 5PM.**
- September 25th, Sunday: **The Peach State Star Gaze opens at 12:00PM.**

September 25th, Sunday: Uranus at Opposition.

September 27th, Tuesday: New Moon.

September 28th, Wednesday: Mercury at Superior Conjunction.

October 2nd, Sunday: **The Peach State Star Gaze closes at 12:00PM.**

October 3rd, Monday: Moon First Quarter.

October 8th, Saturday: Draconids Meteors.

October 14th, Friday: **AAC Meeting at location TBA, 8PM.**

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 . This list is owned by Lemmy Abbey.

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@atlantaastro.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 September is Friday, August 26th. Submissions will not be accepted after the deadline.**



FIRST CLASS



www.beclage.com



We're here to help! Here's how to reach us:
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P.O. Box 76155
Atlanta, GA 30358-1155
www.atlantaastro.org
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Newsletter of The Atlanta Astronomy Club, Inc.

The Focal Point

