The Focal Point

The Atlanta Astronomy Club
Established 1947
August 2012

Vol. 25 No. 3

Editor: Tom Faber

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August General Meeting

Join us for the August meeting of the Atlanta Astronomy Club on Friday, August 17th at 8PM. The meeting will take place in the Parlor Room of the Hitson Center of the Sandy Springs Methodist Church, 86 Mt Vernon Hwy, NE, Sandy Springs, GA 30328 (see map on pg 7). Refreshments will be provided starting around 7:30PM.

The Program:

The August program will be about the Curiosity Rover landing on Mars. The rover is expected to land early in the morning of August 6th local time. We will get an up to date report on the latest adventures of the rover as well as mission plans, objectives and expectations.

Speaker Bio:

Our speaker will be Don German. He is the NASA/JPL Solar System Ambassador from Tellus Science Museum. Don retired from the U.S. Army in 2008 as a Maritime Training and Standards Officer. Don was a Vessel Master with a high level of interest in teaching and practicing celestial navigation. After retiring he joined Tellus as a volunteer and educator. Last year he applied for and was accepted as a NASA/JPL Solar System Ambassador. This gives Don direct access to NASA/JPL engineers and scientists, so he can help us stay up to date on what they are doing.

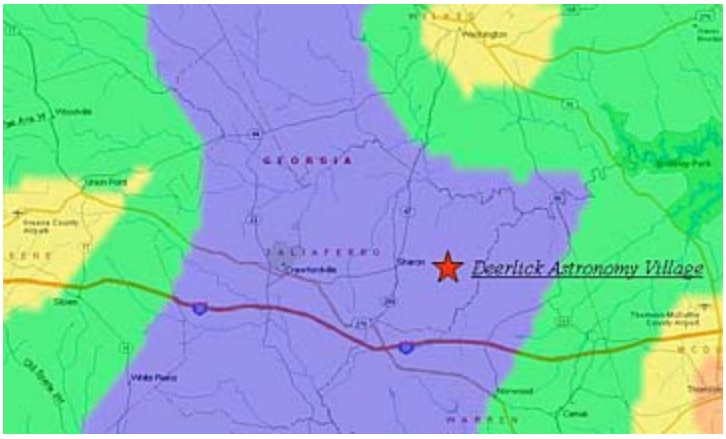
Illustration of the Curiosity Rover on the surface right after the Descent Stage separates and begins to fly away. NASA/JPL

Continued on next page

The 2012 Peach State Star Gaze!

Late News!! Our keynote speaker will be world-class imager Damian Peach! Damian will present talks on Friday and Saturday.

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, October 7 to Sunday, October 14 (new moon is October 15). 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.

Upcoming AAC Meetings:

Our meetings will usually be held on the 3rd Friday of the month. Future meeting dates for 2012 are Sept 21 (**Note: The September meeting will be across Mt. Vernon Hwy from the Hitson Center at the Sandy Springs United Methodist Church Fellowship Hall - the same location where our May meeting was held**)., Oct 19, and Nov 16. The date for December Christmas potluck is TBA. Meetings will be at the Parlor Room of the Hitson Center unless noted otherwise.

July Meeting Minutes

By Pixie Bruner, AAC Recording Secretary.

Photos by Tom Faber

There were 43 members and guests at the July meeting. Our guest speaker Larry Phillips (photo below) presented a very interesting talk about the concept of a space elevator (photo bottom).

After the main talk, the AAC's Program Chair Mark Banks presented the Astronomical League's Jack Horkheimer/O'Meara Journalism Award to club member Katelyn Skaer from Roswell, whose award-winning essay entitled "A Star is Born" won her first place in this annual competition. Congratulations Katelyn! (*Editor's Note: Katelyn's essay is reprinted on the next page*). Katelyn was mentored in entering this competition by the late Art Zorka who was the club's Astronomical League correspondent.

Katelyn holding her award with her parents Judy and Chris Skaer on the left and AAC President Rich Jakiel and Program Chair Mark Banks on the right.

After receiving the Astronomical League award Katelyn presented her essay "A Star is Born" at the club meeting.

Our August 17 meeting will have NASA/JPL Ambassador Don German speaking about the Mars Rover Curiosity.

It has been confirmed that the keynote speaker at the upcoming Peach State Star Gaze (Oct 7-14th) will be world-class imager Damian Peach.

On October 25-27th The Georgia Regional Astronomy Meeting will be held at Georgia Southern University in Statesboro GA.

After the meeting a number of us went to the nearby Mellow Mushroom for food, drink, and socializing.

A Star is Born (and Dies)

By Katelyn Skaer

In the midst of space, a void of air, a new beginning arose. A cloud of hot gas and dust was coming together at a massive speed. As the contents grew closer and closer, it became heated inside the gas and dust cloud. Friction rose, the mass swirled even tighter.

A vortex of extraterrestrial matter was formed. Temperatures soared, gas whooshed about in the swirling cloud. In the center of the space vortex, a small, but very hot, bright ball of gas was born as a part of the cloud collapsed in on itself. It became a star.

The protostar grew relatively quickly, absorbing gas and dust quite speedily. A disk formed around it, composed of dust and other material. This created an erratic influx of material. The amount of infalling matter decreased as the star consumed that of its surroundings. At the core of the protostar, a thermonuclear reaction ignited the hydrogen sufficiently, causing the protostar to move to the T-Tauri stage.

The star had reached its theoretical “adolescence”. Like human adolescents, things quickly turned violent. Massive explosions hurled jets of matter far into space.

Solar flares and coronal mass ejections stirred up by the solar wind wreaked havoc on the young star’s surface. The light from the star flashed irregularly, curving this way and that. This stage did not last long though. Within a few million years, the T-Tauri stage was finished. The star was now fully fledged and burning bright.

Several billions of years later, the star grew old. Fusion in its core weakened as gravity threatened dominance. Fusion was losing. Fast. The core fused new elements frantically, in a futile attempt at self preservation. From the second the star made iron, it was doomed.

The iron in the core absorbed the energy of the fusion, giving gravity the edge. The star collapsed rapidly, almost eliminating fusion. But then, fusion fought back in a last-ditch effort. With the last ebbing of its energy, the star exploded in a violent eruption known as a supernova.

As the giant star collapsed to a neutron star, a rare magnetic event happened suddenly. The magnetic field of the star shifted drastically. Instead of becoming a neutron star, the density of the dead star increased many times. It shrunk to approximately 20 kilometers across, but nearly weighing as much as it’s former glory. It became a solar phenomenon known as a magnetar. Magnetars lasted only millennia, instead of millions of years. The magnetar’s gravity was so intense that a cubic centimeter of it on Earth would have punched a hole through the core. The star created many extreme gamma ray bursts in its spectacularly small life time, but, like any star, it eventually died.

CE Chapter Outreach

By Theo Ramakers, Outreach Coordinator

http://ceastronomy.org/tramakers

Outreach was light this month. We only did five events in July. As every year, the Garden Club of Georgia wanted us to come back again for their summer camp; we did two events in Roswell for the RY Robotics camps, one at Hard Labor Creek State Park for young campers of the Dunwoody Methodist Church, and one at Charlie Elliott. We had a great first half of the year, and I would like to thank all that gave their time and effort to expand the science of astronomy and space exploration to the next generation as we get ready for the new school year. Here are a few pictures from this month’s events of the Garden Club of Georgia and the RY Robotics events.

Clear Skies!

Charlie Elliott Chapter Meeting 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 21, 2012 in the Shepherd Center at 5 PM with twenty two adults and two children in attendance.

Chapter director Larry Owens reminded everyone of our location move from the Visitor Center to the Shepherd Center and said that our usual meeting room will be in "Building B" (located just behind "Building C"). We would also like to meet occasionally on the Jon Wood Astronomy Field when the weather is optimal. Look for signage to be placed at the roadside entrance to the Field on evenings when meetings will be held outside. For the upcoming year, the first meeting of the quarter will feature a guest speaker (January, April, July, October); the second month of the quarter will feature observing presentations and practical demos (February, May, August, November); the third month will be our quarterly potluck "Dinner & a Movie" night (March, June, September, December).

Our guest speaker for the evening was Dr. Joseph Seymour from the Newton campus of Georgia Perimeter College. He gave a fascinating and extensive presentation on Stellar Evolution. His slides will be posted on the CE chapter web site.

Dr. Joseph Seymour of Georgia Perimeter College. Photo by Larry Owens.

Observing supervisor John Towne was unable to attend due to illness, but his observing presentation "What's Up for July 2012" can be found on the CE chapter web site at http://bit.ly/wuJuly12 . Due to a cloudy sky and wet field, there was no evening observing.

Some favorite summer targets:

Object	Type	Mag	Constellation
NGC 6231	Cluster w/ Nebulosity	2.6	Scorpius
Butterfly Cluster	Open Cluster	4.2	Scor/Sag
M7	Open Cluster	3.3	Scorpius
M8 (Lagoon)	Nebula	5.8	Sagittarius
M20 (Trifid)	Nebula	6.3	Sagittarius
M22	Globular Cluster	5.1	Sagittarius
M25	Open Cluster	4.6	Sagittarius
M16 (Eagle)	Nebula	6.0	Above Sag
M11 (Wild Duck)	Open Cluster	5.8	Scutum

The next meeting of the chapter will be Saturday, August 18, 2012 at the Charlie Elliott Wildlife Center. The feature presentation will be "This Month's Sky" by John Towne. Please remember we're trying something NEW during the warmer months of the year! If the weather is nice (in the Goldilocks zone) - and the skies are clear, we're planning to have the meeting out on the Jon Wood observing field (observing field entrance is on your right just before you get to the Visitor's and Conference Center buildings). The meeting will start at 5:00 PM as with an indoor meeting, but instead of starting our presentation at 5:00 PM, we'll have solar observing through member telescopes starting at 5:00PM. The feature presentation would then start at about 8:00 PM - under a REAL sky! LOOK for a SIGN: if the meeting is on the observing field - there will be a sign directing you to turn. Otherwise, continue on to the Charlie Elliott's Shepherd Center Building B. In either case, the meeting starts at 5:00 PM. When the meeting is on the field, please bring an extra camping chair or blanket to sit on for the presentations.

M20 Image by Dan Llewellyn

This image of M20, the Trifid Nebula in Sagittarius, was taken on June 26 in poor to average seeing by club memeber Dan Llewellyn at Deerlick Astronomy Village. Dan used a 12 Inch Imaging Newtonian and stacked of 7 x 6 minute subs with an Orion one shot color Starshoot Pro II camera.

Cassini Spots Lightning on Saturn

PASADENA, Calif. – Saturn was playing the lightning storm blues. NASA's Cassini spacecraft has captured images of last year's storm on Saturn, the largest storm seen up-close at the planet, with bluish spots in the middle of swirling clouds. Those bluish spots indicate flashes of lightning and mark the first time scientists have detected lightning in visible wavelengths on the side of Saturn illuminated by the sun.

"We didn't think we'd see lightning on Saturn's day side – only its night side," said Ulyana Dyudina, a Cassini imaging team associate based at the California Institute of Technology in Pasadena. "The fact that Cassini was able to detect the lightning means that it was very intense."

Images can be found at http://www.nasa.gov/cassini , http://saturn.jpl.nasa.gov and http://ciclops.org .

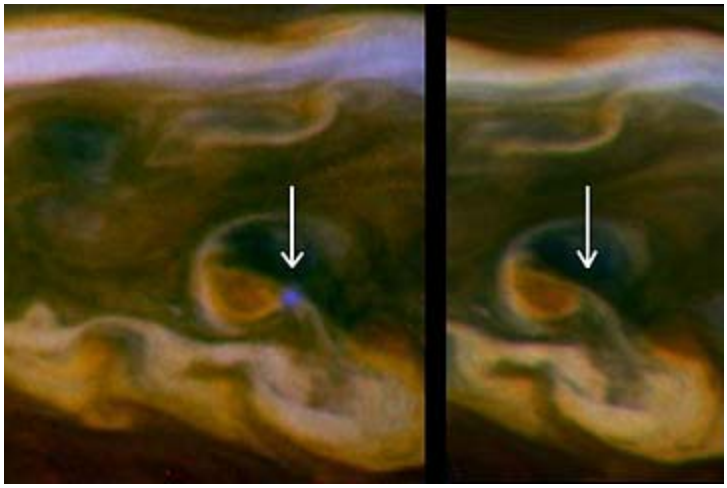
The storm occurred last year. The lightning flashes appear brightest in the blue filter of Cassini's imaging camera on March 6, 2011. Scientists aggressively heightened the blue tint of the image to determine its size and location. Scientists are still analyzing why the blue filter catches the lightning. It might be that the lightning really is blue, or it might be that the short exposure of the camera in the blue filter makes the short-lived lightning easier to see.

What scientists do know is that the intensity of the flash is comparable to the strongest flashes on Earth. The visible energy alone is estimated to be about 3 billion watts lasting for one second. The flash is approximately 100 miles (200 kilometers) in diameter when it exits the tops of the clouds. From this, scientists deduce that the lightning bolts originate in the clouds deeper down in Saturn's atmosphere where water droplets freeze. This is analogous to where lightning is created in Earth's atmosphere.

In composite images that show the band of the storm wrapping all the way around Saturn, scientists have seen multiple flashes. In one composite image, they recorded five flashes, and in another, three flashes.

"As summer storm season descends upon Earth's northern latitudes, Cassini provides us a great opportunity to see how weather plays out at different places in our solar system," said Linda Spilker, Cassini project scientist, based at NASA's Jet Propulsion Laboratory, Pasadena, Calif. "Saturn's atmosphere has been changing over the eight years Cassini has been at Saturn, and we can't wait to see what happens next."

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. JPL, a division of the California Institute of Technology in Pasadena, manages the Cassini-Huygens mission for NASA's Science Mission Directorate, Washington.



These false-color mosaics from NASA's Cassini spacecraft capture lightning striking within the huge storm that encircled Saturn's northern hemisphere for much of 2011. Credit: NASA/JPL-Caltech/SSI

Hubble Discovers Fifth Moon of Pluto

STScI News Release - July 11, 2012

A team of astronomers using NASA's Hubble Space Telescope is reporting the discovery of another moon orbiting the icy dwarf planet Pluto.

The moon is estimated to be irregular in shape and 6 to 15 miles across. It is in a 58,000-mile-diameter circular orbit around Pluto that is assumed to be co-planar with the other satellites in the system. "The moons form a series of neatly nested orbits, a bit like Russian dolls," said team lead Mark Showalter of the SETI Institute in Mountain View, Calif. The discovery increases the number of known moons orbiting Pluto to five.

The Pluto team is intrigued that such a small planet can have such a complex collection of satellites. The new discovery provides additional clues for unraveling how the Pluto system formed and evolved. The favored theory is that all the moons are relics of a collision between Pluto and another large Kuiper belt object billions of years ago.

The new detection will help scientists navigate NASA's New Horizons spacecraft through the Pluto system in 2015, when it makes an historic and long-awaited high-speed flyby of the distant world. The team is using Hubble's powerful vision to scour the Pluto system to uncover potential hazards to the New Horizons spacecraft. Moving past the dwarf planet at a speed of 30,000 miles per hour, New Horizons could be destroyed in a

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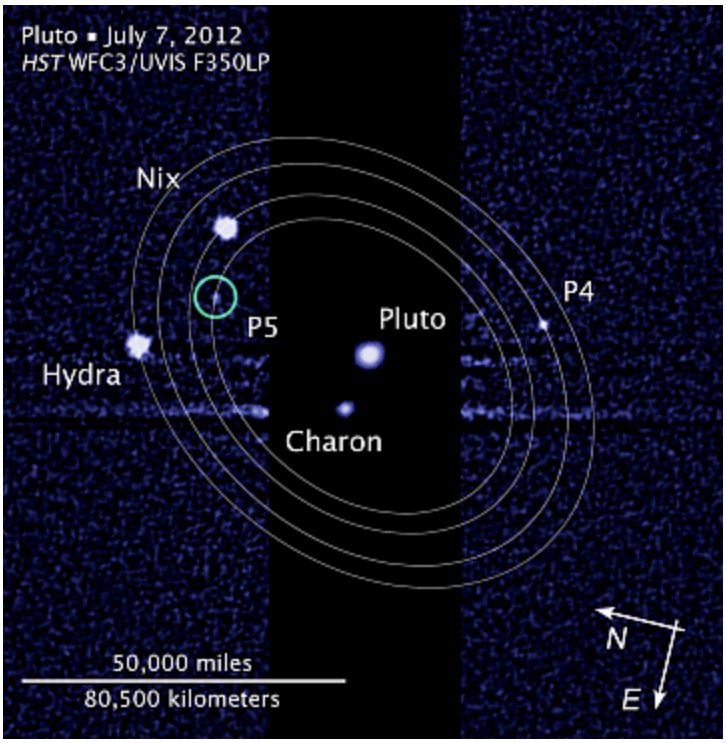


This image, taken by NASA's Hubble Space Telescope, shows five moons orbiting the distant, icy dwarf planet Pluto. The newly discovered small moon, designated P5, is the innermost of the moons found by Hubble over the past seven years. The diagram shows that P5 is in a 58,000-mile-diameter circular orbit around Pluto that is assumed to be co-planar with the other satellites in the system. Though Charon (discovered in 1978) is an even closer moon to Pluto, some astronomers consider the Pluto-Charon pair a "double planet" because of Charon's is 12 percent of Pluto's mass (by comparison our Moon is 0.01 percent Earth's mass). This image was taken with Hubble's Wide Field Camera 3 on July 7. Other observations that collectively show the moon's orbital motion were taken on June 26, 27, and 29, 2012 and July 9, 2012. The new data will help scientists in their planning for the July 2015 flyby of Pluto by NASA's New Horizons spacecraft. Illustration Credit: NASA, ESA, and L. Frattare (STScI). Science Credit: NASA, ESA, and M. Showalter (SETI Institute)

collision with even a BB-shot-size piece of orbital debris. “The discovery of so many small moons indirectly tells us that there must be lots of small particles lurking unseen in the Pluto system,” said Harold Weaver of the Johns Hopkins University Applied Physics Laboratory in Laurel, Md. “The inventory of the Pluto system we’re taking now with Hubble will help the New Horizons team design a safer trajectory for the spacecraft,” added Alan Stern of the Southwest Research Institute in Boulder, Colo., the mission's principal investigator.

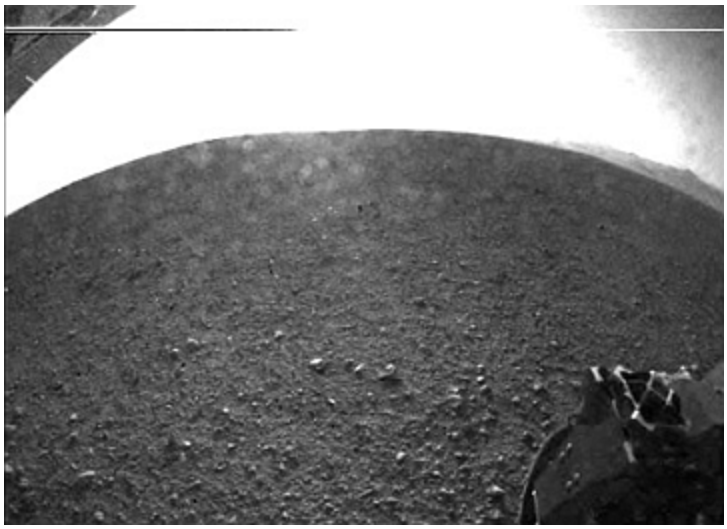
Pluto’s largest moon, Charon, was discovered in 1978 in observations made at the United States Naval Observatory in Washington, D.C. Hubble observations in 2006 uncovered two additional small moons, Nix and Hydra. In 2011 another moon, P4, was found in Hubble data. Provisionally designated S/2012 (134340) 1, the latest moon was detected in nine separate sets of images taken by Hubble's Wide Field Camera 3 on June 26, 27, and 29, 2012 and July 7 and 9, 2012.

In the years following the New Horizons Pluto flyby, astronomers plan to use the infrared vision of Hubble’s planned successor, NASA’s James Webb Space Telescope, for follow-up observations. The Webb telescope will be able to measure the surface chemistry of Pluto, its moons, and many other bodies that lie in the distant Kuiper Belt along with Pluto.

The Pluto team members are M. Showalter (SETI Institute), H.A. Weaver (Applied Physics Laboratory, Johns Hopkins University), and S.A. Stern, A.J. Steffl, and M.W. Buie (Southwest Research Institute).

Curiosity Lands on Mars!

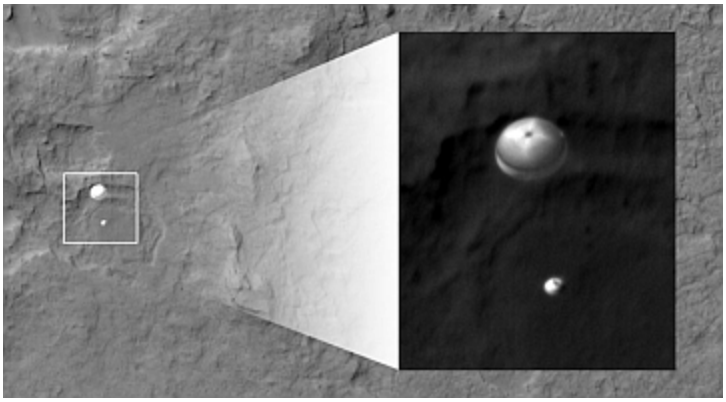
Early on the morning of August 6 (EDT) the Mars Rover Curiosity made a spectacular landing at Gale Crater just south of Mars’ equator. Here are a few images from Curiosity’s first Sol on Mars!



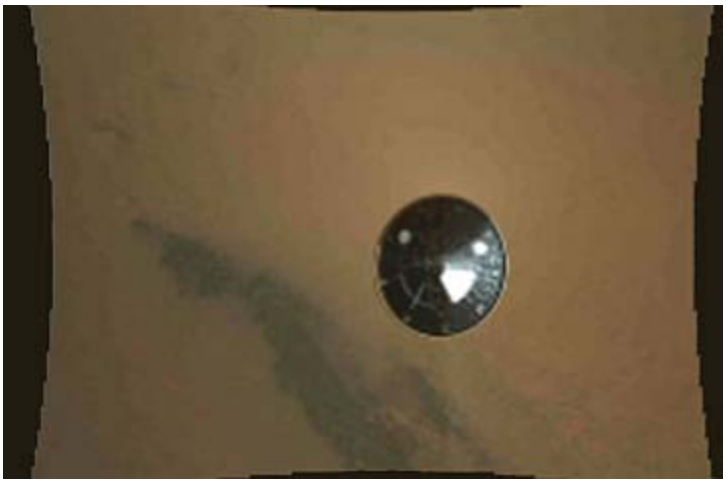
About two hours after landing on Mars and beaming back its first image, NASA’s Curiosity rover transmitted a higher-resolution image of its new Martian home, Gale Crater, Mission Control at NASA’s Jet Propulsion Laboratory in Pasadena, Calif., received this image, taken by one of the vehicle’s lower-resolution, black-and-white Hazard Avoidance Cameras - or Hazcams. The photo shows one of Curiosity’s rear wheels in the lower right, part of the cooling fins on the RTG power source in the upper left, and part of the rim of Gale Crater in the upper right. Image credit: NASA/JPL-Caltech.

Image right: This color thumbnail image was obtained by the Curiosity rover during its descent to the surface of Mars. The image was obtained by the Mars Descent Imager instrument known as MARDI and shows the 15-foot diameter heat shield right after it was discarded and was about 50 feet from the spacecraft. Image credit: NASA/JPL-Caltech

This image was taken by Curiosity’s front left Hazard-Avoidance camera at full resolution shortly after it landed. It shows two of the rover’s wheels and it’s shadow in the foregrorund and in the distance is 3.4-mile tall Mount Sharp, which is Curiosity’s main science target. Credit: NASA/JPL-Caltech.

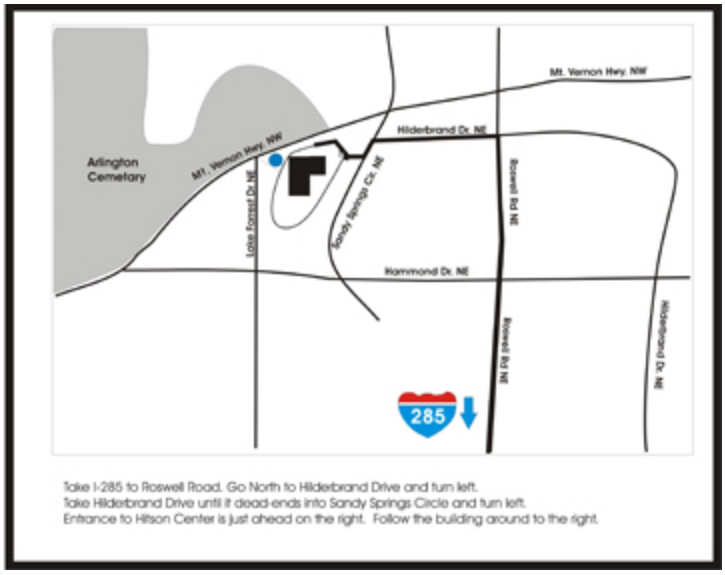


An image from the High Resolution Imaging Science Experiment (HiRISE) camera aboard NASA’s Mars Reconnaissance Orbiter captured the Curiosity rover still connected to its 51-foot-wide parachute as it descended towards its landing site at Gale Crater. The image was taken while MRO was 211 miles away from the parachuting rover. Curiosity and its rocket-propelled backpack, contained within the conical-shaped back shell, had yet to be deployed. At the time, Curiosity was about two miles above the Martian surface.



The *Focal Point* Archives

The AAC began publishing the *Focal Point* as a PDF online in June 1998. Since then every issue has, and still is, available for download from the club's web page. Recently that archive has expanded. Sharon Carruthers has scanned 61 issues of the AAC's newsletter (then called *The Atlanta Astronomers' Report*) from 1948 to 1977. Although many issues from this period are still missing these provide a valuable record of the club's early years. In addition I (Tom Faber) came across 19 issues of the *Focal Point* from the years 1995-1998 that I scanned to make available on the club's web site. Again not every issue during this period is available but it is another step in maintaining and making available to all a record of the AAC's history. Our web master Daniel Herron has uploaded these to the web site as PDF's for download. Just visit www.atlantaastronomy.org and click on the "Focal Point Archives" link on the right side of the page. If you have any of the missing issues of the club's newsletter that you would like to scan and submit to Daniel as a PDF please do!



The AAC's meeting location at the Hitson Center in Sandy Springs.

The **Atlanta Astronomy Club, Inc**., the South's largest and oldest astronomical society, meets at **8:00 P.M.** on the 3rd Friday of each month in the Parlor Room - Hitson Center in Sandy Springs, 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.

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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Board: David Lumpkin, Contact info TBA

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PSSG Co-Chair: Joanne Cirincione starrynights@AtlantaAstronomy.org

Sidewalk Astronomy: Brad Isley sidewalkastronomy@AtlantaAstronomy.org

Light Tresspass: 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, Contact info TBA

The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

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www.atlantaastronomy.org
On Twitter at http://twitter.com/atlastro

FIRST CLASS

www.beetagg.com

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

AAC Events are listed in BOLD

Aug 9th, Thursday: Moon Last Quarter.

Aug 10th, Saturday: **DSO at location Brasstown Bald.**

Aug 12th, Sunday: Perseid Meteors.

Aug 13th, Monday: Moon near Venus morning.

Aug 17th, Friday: **AAC Meeting, 8PM.** New Moon.

Aug 18th, Saturday: **CE Chapter Meeting, 5PM.**

Aug 21st, Tuesday: Grouping of Moon, Mars, Saturn, Spica in evening.

Aug 24th, Friday: Moon First Quarter.

Aug 31st, Friday: Full Moon.

Sept 8th, Saturday: Moon Last Quarter near Jupiter in morning.

Sept 12th, Wednesday: Moon near Venus in morning

Sept 15th, Saturday: **CE Chapter Meeting, 5PM. DSO at location TBA**. New Moon.

Sept 21st, Friday: **AAC Meeting, 8PM.**

Sept 22nd, Saturday: Moon First Quarter.

Sept 29th, Saturday: Full Moon.

Oct 7th - 14th: Peach State Star Gaze!!

Oct 7th, Sunday: Draconid Meteors.

Oct 8th, Monday: Moon Last Quarter.

Oct 15th, Monday: New Moon.

Oct 19th, Friday: **AAC Meeting, 8PM.**

Oct 20th, Saturday: **CE Chapter Meeting.**

Oct 21st, Sunday: Moon First Quarter. Orionids Meteors.

Oct 29th, Monday: Full Moon.

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

Atlanta Astronomy Club Listserv

Subscribe to the Atlanta Astronomy Club Mailing List: The name of the list is: AstroAtlanta. The address for messages is: AstroAtlanta@yahoogroups.com . To add a subscription, send a message to: AstroAtlanta-subscribe@yahoogroups.com . This list is owned by Lenny 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@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 September is Friday, August 24th. Submissions after the deadline will go in the following issue.**