

The Focal Point

The Atlanta Astronomy Club
Established 1947
July 2007

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Editor: Kat Sarbell

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July General Membership Meeting

By Peter Macumber, President and Keith "Kosmic Kow" Burns, Retired AAC Program Chair

The next general meeting of the Atlanta Astronomy Club will be on Friday, July 20th, at 8 P.M. at Emory University at White Hall. The meeting will take place in room 207. This is the first room on the left after entering into the building through the double doors. We will have refreshments just outside of the room before the meeting. A small donation in the "kitty" box is requested but not required. Directions to White Hall and new parking info are on page 7.

The meeting starts at 8 PM sharp. We will have our business meeting first. This includes any announcements and other things of astronomical interest. Anyone who wishes to make any announcements please notify Peter Macumber at president@atlantaastronomy.org and also email me at Keith_B@Bellsouth.net. That way Peter knows who is speaking ahead of time and he can schedule the time required. I need to know so I can put your information on a Power Point presentation slideshow that will run before and during the beginning of the business meeting. Please have the announcement info to me by no later than July 17th (Tuesday).

Our featured speaker of the night, Dr. Richard Schmude, will give his talk with questions and answers to follow. We will adjourn the meeting and head off to a local eating establishment for supper, dessert, or just a drink.

Dr. Richard Schmude Jr. will present a talk about Jupiter and what is currently happening on the planet. Richard will talk about his recent observations and measurements of the planet. He will also talk about features you should look for when observing Jupiter. Yes, you too can do some serious science! Dr. Richard Schmude's talks are always entertaining and educational.

Dr. Schmude is a professor of physics and astronomy at Gordon College. He is the Remote Planets Section Coordinator, the Jupiter Coordinator,



and board member of ALPO, as well as Secretary of the Astronomical League. He is also an active member of the American Association of Variable Star Observers, and the Flint River and Atlanta Astronomy Clubs. Raised in Texas, he received his Ph.D. in Physical Chemistry from Texas A&M University in 1994. Since then, Dr. Schmude has been teaching astronomy, physics and chemistry at Gordon College in Barnesville, GA. His primary areas of study include the solar system, variable stars and planetary nebulae.

Message from the Editor

Most of the images in the Focal Point are in color, but you won't see that if you are getting the mailed version. You can download the full color version from the AAC web site each month. By receiving the Focal Point over the Internet instead of having it mailed, you can save the club about \$12 a year in printing and mailing costs. It may not sound like much, but the more people that use the Internet to receive the Focal Point, the more money the club will have to support its other activities. Just send an email to Kat Sarbell (FocalPoint@AtlantaAstronomy.Org) requesting that your name be removed from the Focal Point mailing list.

Woodruff Boy Scout Summer Camp

by Sharon Carruthers, AAC Treasurer

The summer scout camping season is fast upon us. This is not only our time to "pay the rent" for our use of Woodruff as a Dark Sky site; but also our best opportunity to fulfill our Club mandate to "educate" and "to promote the public knowledge of and interest in astronomy".

Our on-field viewing with the scopes will be on Thursday night, after dark (from 9:30 – 10 PM.). You can set up the Club's 24" (if you have been trained on it), or use your own scope. Charles Hinley has donated his 10"/F6.0" Discovery Dob to the Club & I will be bringing it up for the summer program.

We need volunteers to commit to go up on Thursdays, from June 7 – July 26. Please phone or e-mail me if you can commit to one or more evenings. Contact me at scarruthers@AtlantaAstronomy.org or 770-941-4640 (h); 404-843-9610 (w).

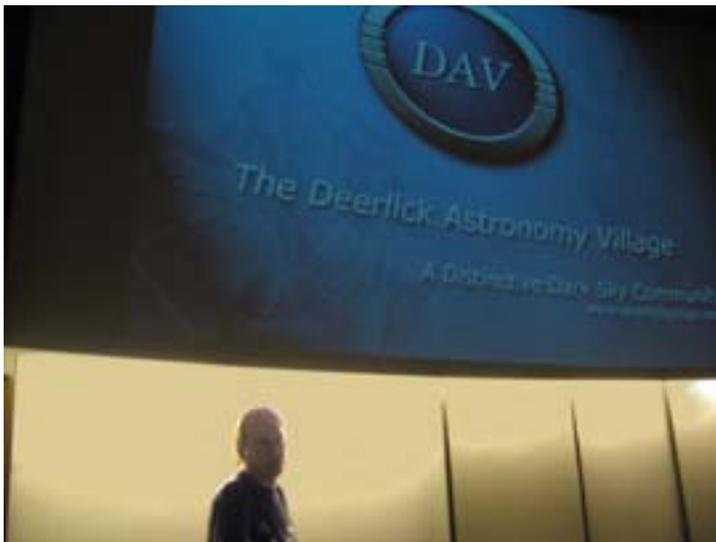
June 15th General Meeting Minutes

By Richard Jakiel, AAC Recording Secretary

Meeting Photo by Tom Faber

The June 15th general meeting of the AAC started at 08:05 PM with the re-elected president Peter Macumber presiding. Peter discussed two important upcoming resolutions that will have a direct impact on the membership. The first affects only those that receive the printed version of the Focal Point. For them, the AAC dues are to be increased 5 dollars per year to cover the mounting costs of postage and printing. (Those receiving the online version are unaffected). Second, the BOD has passed a resolution to reduce the total number serving from the current 12 to a more reasonable 10 (this will require a rewriting of the AAC's Bylaws).

Dave Lumpkin announced that the next "New Member Forum" at Villa Rica will be on July 7th, starting at 8 PM. After the main presentation, Larry Wallace gave a much more detailed breakdown on the planned/ongoing build-out of the AAC's new facility at DAV. For updates and scheduled work days, please check the club's list on Yahoo Groups or contact Larry directly.



The featured speaker of the night was Chris Hetlage (above), one of the co-founders of the Deerlick Astronomical Village (DAV). Using lots of images, he discussed the history and construction of this planned astronomical community, now known as DAV. This included lots bulldozer 'fun' and even some of the background history of the site. After the meeting, many of the members headed over to Athens Pizza for food and drinks.

Observing Events for 2007

by Daniel Herron, Observing Chair

Here are some dates in 2007 for Observing events (all dates subject to change). I am sure some will be added or changed during the course of the year but I will try and stick to them if possible. I will update the locations and times later as well as add them to the AAC web site and the Yahoo Astro Atlanta List.

DSO Dates (locations noted if known/decided) July 14th @ DAV, August 11th, September 8th, October @ DAV (PSSG), November 10th, December 8th

GASP Events November 3rd - Red Top Mtn State Park.

New member Orientation/Open Houses (all at Villa Rica for now unless noted) July 21 (New member Orientation), September 22nd (Open House), October 20 (New member Orientation), December 15th (Open House - New member Orientation).

Upcoming Telescope & Instrument Workshop Meetings

by Sharon Carruthers

The next couple of meetings of the Telescope and Instrument Workshop will be 11 AM Saturdays, July 7, and August 4 at the Bradford Map & Telescope Atlanta store, 300 Hammond Rd, Sandy Springs. We are planning to build loaner scopes. Or bring your scope problems and we will try to help you out. For more info you can contact me at 404-843-9610 (work) or scarruthers@AtlantaAstronomy.org.

Sky & Telescope Subscription Change

by Sharon Carruthers

S&T has been bought out by a new company and their subscription service has been transferred to an off-site location. They have changed their subscription procedures which should make it easier for our members and the Club Treasurer (me!!)

Renewal Subscriptions Only: Members can now renew directly at S&T via mail or phone (1-800-253-0245). Payment is due when you re-order. You can still renew through the Club, if you wish. S&T will send the Treasurer a subscription list once a year to vet whether or not the subscribers contacting them are actually AAC members.

New Subscriptions: Must still be submitted through the Club!

If you have any questions, please contact me at Treasurer@AtlantaAstronomy.org

Jupiter by Dan Llewellyn



Dan Llewellyn of Telescope Atlanta took this dramatic image of Jupiter on May 22 at 1:51 AM EST. He was visiting Rich Jakiel's observing area, aka "Stooge's Field." Additional stats: C14 at F22, DBK 31, AF 3103.AS.

Charlie Elliott June Minutes

by Clevis Jones, CE Recording Secretary

ATTENDANCE: Twenty-two guests and members attended the June 9 meeting.

BUSINESS: Director, Larry Owens, requested ideas for future programs. Jon Wood volunteered to present an astronomy program to the Charlie Elliott Wildlife Center's Overnight Camp (30 teenagers) on Wednesday, July 11, 2007 at 6:45 p.m. with observing on the field beginning about 9 p.m., ending about 10:30 p.m. Theo Ramakers and Steve Bieger volunteered to set up telescopes on the field - any volunteers to assist Jon and more telescopes would be greatly appreciated. Please contact any club officer:

Larry Owens Director@CEastronomy.org

Steve Bieger Observing@CEastronomy.org

Clevis Jones Secretary@CEastronomy.org

Larry Owens and Steve Bieger gave an update on the progress of the 16-inch and 12.5-inch projects. Steve has requested anyone with some spare high quality plywood scrap material contact him: Steve Bieger Observing@CEastronomy.org

2007 remaining schedule for the CE Meetings is: July 7, Aug 18, September 15, October 6 (note: Peach State on the 13th), November 3 (back to 3 p.m. for the winter), December 15.

FEATURE PRESENTATION: Pot Luck - and was it ever good! Thanks to all the hands who took the time and care to make the goodies for us and to everyone who supplied utensils, food, and clean-up!

WHAT'S UP TONIGHT: Steve Bieger opened this month's program by familiarizing us with the "International Initiative In Defence Of The Quality Of The Night Sky As Mankind's Scientific, Cultural and Environmental Right" - the "Declaration" and other supporting information can be found here: <http://www.unescocan.org/starlight/starlighteng.htm>

CURRENT EVENTS: Clevis Jones gave everyone some "nap time" by covering Astronomy Round Up, SOFIA and its "Clipper Lindbergh", Mars Rovers Opportunity and Spirit, spacecraft Cassini's recent activities, a new space radiation hazard early warning method discovered by Arik Posner using SOHO's data, new exo-planet discoveries, Hubble's M81, Spitzer's Dwarf Galaxies, 4 definitions of Blue Moon, Imaging of Altair's Face with the CHARA Interferometer, Messenger, AR10960, SOHO's surprise comet, Shuttle Atlantis & STS-117's, Suni's ISS Marathon Run, CEWC Overnight Camp to be given by Jon Wood, and M3.

OBSERVING SESSION: Thirteen folks went to the observing field to catch Venus & Mercury.

Charlie Elliot Future Meetings

by Clevis Jones, CE Recording Secretary

MEETING DATES AND PROGRAMS:

July 7 at 5:00 p.m. Feature Presentation: Jon Wood on building your own observatory. Then "What's up Tonight" by Steve Bieger and "Current Events" by Clevis Jones, followed by observing on the field, weather permitting.

Place: Charlie Elliott Visitor's Center

Next Meeting: August 18, 5:00 p.m. Feature Presentation - Philip Sacco on Astronomical Mythology.

FOR UPDATES & DIRECTIONS & LIVE broadcasts: PLEASE check the CEastronomy website for the most current meeting information!

<http://www.CEastronomy.org>

NASA's Swift Sees Double Supernova

NASA-GSFC News Release - June 26, 2007

In just the past six weeks, two supernovae have flared up in an obscure galaxy in the constellation Hercules. Never before have astronomers observed two of these powerful stellar explosions occurring in the same galaxy so close together in time.

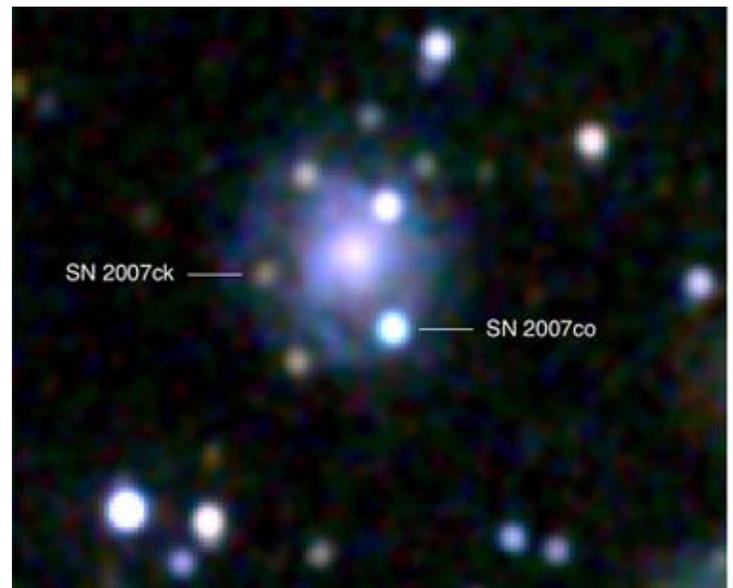
The galaxy, known as MCG +05-43-16, is 380 million light-years from Earth. Until this year, astronomers had never sighted a supernova popping off in this stellar congregation. A supernova is an extremely energetic and life-ending explosion of a star.

Making the event even more unusual is the fact that the two supernovae belong to different types. Supernova 2007ck is a Type II event - which is triggered when the core of a massive star runs out of nuclear fuel and collapses gravitationally, producing a shock wave that blows the star to smithereens. Supernova 2007ck was first observed on May 19.

In contrast, Supernova 2007co is a Type Ia event, which occurs when a white dwarf star accretes so much material from a binary companion star that it blows up like a giant thermonuclear bomb. It was discovered on June 4, 2007. A white dwarf is the exposed core of a star after it has ejected its atmosphere; it's approximately the size of Earth but with the mass of our Sun.

"Most galaxies have a supernova every 25 to 100 years, so it's remarkable to have a galaxy with two supernovae discovered just 16 days apart," says Stefan Immler of NASA's Goddard Space Flight Center. In 2006 Immler used NASA's Swift satellite to image two supernovae in the elliptical galaxy NGC 1316, but both of those explosions were Type Ia events, and they were discovered six months apart.

The simultaneous appearance of two supernovae in one galaxy is an extremely rare occurrence, but it's merely a coincidence and does not imply anything unusual about MCG +05-43-16. Because the two supernovae are tens of thousands of light-years from each other, and because light travels at a finite speed, astronomers in the galaxy itself, or in a different galaxy, might record the two supernovae exploding thousands of years apart.



Supernova 2007ck (left) is a Type II event, and Supernova 2007co (right) is a Type Ia event. The image is a combination of red, green, and blue pictures taken on June 9 and 12 by the Ultraviolet/Optical Telescope on NASA's Swift satellite, which was designed primarily to study another type of stellar explosion - gamma ray bursts. Credit: Stefan Immler NASA/GSFC, Swift Science Team.

GASP at Tallulah Gorge State Park

On June 23rd the Georgia Astronomy in State Parks (GASP) volunteers presented an astronomy program for the campers and visitors at Tallulah Gorge State Park. Approximately 75 guests showed up to hear the beginner's astronomy program and look through the telescopes at the Moon, Venus, Saturn, Jupiter, and other celestial objects. Toward the end of the event visitors who remained were treated to a pass by the International Space Station in the southwestern sky. The AAC members present were Joanne Cirincione, Sharon Carruthers, Peter Macumber, Kat Sarbell, Tom Faber, Keith Burns, Harold and Claudia Champ, and Holly and John Ritger. All photos by Tom Faber.



Keith Burns (left) shared a camp site with Tom Faber and Kat Sarbell (right). Here we're having breakfast Saturday morning.



Some of the volunteers gather at Peter Macumber and Sharon Carruthers' camp site prior to the program.

Photo right: GASP organizer Joanne Cirincione (left) and program presenter Sharon Carruthers shortly before Sharon began her talk.



The GASP crew set up the laptop, projector, and telescopes on the field as visitors begin to arrive for the program (above and below).



NASA Mars Rover Ready For Descent Into Crater

NASA/JPL News Release - June 28, 2007

PASADENA, Calif. - NASA's Mars rover Opportunity is scheduled to begin a descent down a rock-paved slope into the Red Planet's massive Victoria Crater. This latest trek carries real risk for the long-lived robotic explorer, but NASA and the Mars Rover science team expect it to provide valuable science.

Opportunity already has been exploring layered rocks in cliffs around Victoria Crater. The team has planned the descent carefully to enable an eventual exit, but Opportunity could become trapped inside the crater or lose some capabilities. The rover has operated more than 12 times longer than its originally intended 90 days.

The scientific allure is the chance to examine and investigate the compositions and textures of exposed materials in the crater's depths for clues about ancient, wet environments. As the rover travels farther down the slope, it will be able to examine increasingly older rocks in the exposed walls of the crater.

"While we take seriously the uncertainty about whether Opportunity will climb back out, the potential value of investigations that appear possible inside the crater convinced me to authorize the team to move forward into Victoria Crater," said Alan Stern, NASA associate administrator, Science Mission Directorate, NASA Headquarters, Washington. "It is a calculated risk worth taking, particularly because this mission has far exceeded its original goals."

The robotic geologist will enter Victoria Crater through an alcove named Duck Bay. The eroding crater has a scalloped rim of cliff-like promontories, or capes, alternating with more gently sloped alcoves, or bays.



A meteor impact millions of years ago excavated Victoria, which lies approximately 6 kilometers south of where Opportunity landed in January 2004. The impact-created bowl is 800 meters across and about five times as wide as Endurance Crater, where Opportunity spent more than six months exploring in 2004.

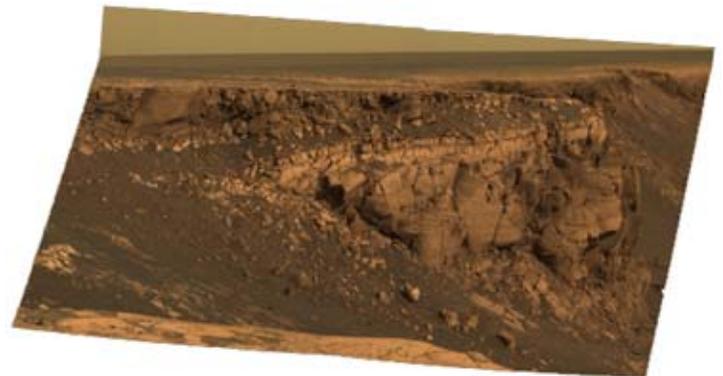
The rover began the journey to Victoria from Endurance 30 months ago. It reached the rim at Duck Bay nine months ago. Opportunity then drove approximately a quarter of the way clockwise around the rim, examining rock layers visible in the promontories and possible entry routes in the alcoves. Now, the rover has returned to the most favorable entry point.

"Duck Bay looks like the best candidate for entry," said John Callas, rover project manager, NASA's Jet Propulsion Laboratory, Pasadena, Calif. "It has slopes of 15 to 20 degrees and exposed bedrock for safe driving."

If all of its six wheels continue working, engineers expect Opportunity to be able to climb back out of the crater. However, Opportunity's twin rover, Spirit, lost the use of one wheel more than a year ago, diminishing its climbing ability.

"These rovers are well past their design lifetimes, and another wheel could fail on either rover at any time," Callas said. "If Opportunity were to lose the use of a wheel inside Victoria Crater, it would make it very difficult, perhaps impossible, to climb back out."

"We don't want this to be a one-way trip," said Steve Squyres, principal investigator for the rovers' science instruments, Cornell University, Ithaca, N.Y. "We still have some excellent science targets out on the plains that we would like to visit after Victoria. But if Opportunity becomes trapped there, it will be worth the knowledge gained."



This image (above) captured by NASA's Mars Exploration Rover Opportunity shows "Cape St. Vincent," one of the many promontories that jut out from the walls of Victoria Crater, Mars. The material at the top of the promontory consists of loose, jumbled rock, then a bit further down into the crater, abruptly transitions to solid bedrock. This transition point is marked by a bright band of rock, visible around the entire crater.

Scientists say this bright band represents what used to be the surface of Mars before it was impacted to form Victoria Crater. As Opportunity begins to descend into the crater in early July 2007, it will examine the band carefully at an accessible location with a gentle slope. These investigations might help determine if the band's brighter appearance is the result of ancient interactions with the Martian atmosphere.

This image was taken by Opportunity's panoramic camera on sol 1167 (May 6, 2007). It is presented in approximately true color. Image credit: NASA/JPL/Cornell



The route followed by NASA's Mars Exploration Rover Opportunity during its exploration partway around the rim of Victoria Crater is marked on this map. The rover first reached the edge of the crater on its 951st Martian day, or sol (Sept. 26, 2006). This map shows travels through sol 1,215 (June 24, 2007). The underlying image is from the High Resolution Imaging Science Experiment camera on NASA's Mars Reconnaissance Orbiter. Image Credit: NASA/JPL/Cornell/University of Arizona/Ohio State University

Hubble Asteroid Images Help Prepare for Spacecraft Visit

NASA News Release- June 20, 2007

These Hubble Space Telescope images of Vesta and Ceres show two of the most massive asteroids in the asteroid belt, a region between Mars and Jupiter. The images are helping astronomers plan for the Dawn spacecraft's tour of these hefty asteroids.

On July 7, NASA is scheduled to launch the spacecraft on a four-year journey to the asteroid belt. Once there, Dawn will do some asteroid-hopping, going into orbit around Vesta in 2011 and Ceres in 2015. Dawn will be the first spacecraft to orbit two targets. At least 100,000 asteroids inhabit the asteroid belt, a reservoir of leftover material from the formation of our solar-system planets 4.6 billion years ago.

Dawn also will be the first satellite to tour a dwarf planet. The International Astronomical Union named Ceres one of three dwarf planets in 2006. Ceres is round like planets in our solar system, but it does not clear debris out of its orbit as our planets do.

To prepare for the Dawn spacecraft's visit to Vesta, astronomers used Hubble's Wide Field Planetary Camera 2 to snap new images of the asteroid. The image at right was taken on May 14 and 16, 2007. Using Hubble, astronomers mapped Vesta's southern hemisphere, a region dominated by a giant impact crater formed by a collision billions of years ago. The crater is 285 miles (456 kilometers) across, which is nearly equal to Vesta's 330-mile (530-kilometer) diameter. If Earth had a crater of proportional size, it would fill the Pacific Ocean basin. The impact broke off chunks of rock, producing more than 50 smaller asteroids that astronomers have nicknamed "vestoids." The collision also may have blasted through Vesta's crust. Vesta is about the size of Arizona.

Previous Hubble images of Vesta's southern hemisphere were taken in 1994 and 1996 with the wide-field camera. In this new set of images,

Hubble's sharp "eye" can see features as small as about 37 miles (60 kilometers) across. The image shows the difference in brightness and color on the asteroid's surface. These characteristics hint at the large-scale features that the Dawn spacecraft will see when it arrives at Vesta.

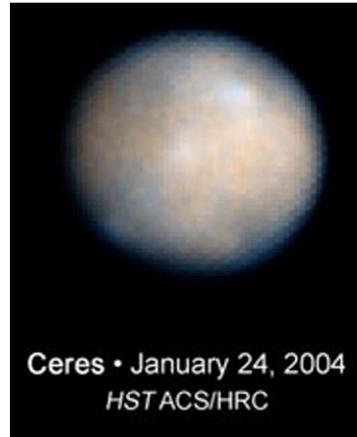
Hubble's view reveals extensive global features stretching longitudinally from the northern hemisphere to the southern hemisphere. The image also shows widespread differences in brightness in the east and west, which probably reflect compositional changes. Both of these characteristics could reveal volcanic activity throughout Vesta. The size of these different regions varies. Some are hundreds of miles across.

The brightness differences could be similar to the effect seen on the Moon, where smooth, dark regions are more iron-rich than the brighter highlands that contain minerals richer in calcium and aluminum. When Vesta was forming 4.5 billion years ago, it was heated to the melting temperatures of

rock. This heating allowed heavier material to sink to Vesta's center and lighter minerals to rise to the surface.

Astronomers combined images of Vesta in two colors to study the variations in iron-bearing minerals. From these minerals, they hope to learn more about Vesta's surface structure and composition. Astronomers expect that Dawn will provide rich details about the asteroid's surface and interior structure.

The Hubble image of Ceres on the left reveals bright and dark regions on the asteroid's surface that could be topographic features, such as craters and/or areas containing different surface material. Large impacts may have caused some of these features and potentially added new material to the



Credits for Ceres: NASA; ESA; J. Parker (Southwest Research Institute); P. Thomas (Cornell University); L. McFadden (University of Maryland, College Park); and M. Mutchler and Z. Levay (Space Telescope Science Institute)

landscape. The Texas-sized asteroid holds about 30 to 40 percent of the mass in the asteroid belt. Ceres' round shape suggests that its interior is layered like those of terrestrial planets such as Earth. The asteroid may have a rocky inner core, an icy mantle and a thin, dusty outer crust. The asteroid may even have water locked beneath its surface. It is approximately 590 miles (950 kilometers) across and was the first asteroid discovered in 1801.

The observations were made in visible and ultraviolet light between December 2003 and January 2004 with the Advanced Camera for Surveys. The color variations in the image show either a difference in texture or composition on Ceres' surface.

Astronomers need the close-up views of the Dawn spacecraft to determine the characteristics of these regional differences.

The Hubble Space Telescope is a project of international cooperation between NASA and the European Space Agency. The Space Telescope Science Institute conducts Hubble science operations. The institute is operated for NASA by the Association of Universities for Research in Astronomy, Inc., Washington.



Atlantis lands at Edwards Air Force Base, California on June 22 after it delivered the 3rd set of solar arrays and astronaut Clayton Anderson to the International Space Station, and returned home Sunita Williams after more than 6 months aboard the Station. Note that the drag chute has just been fired from the rear of the Shuttle. Image Credit: NASA.

Directions to White Hall at Emory

Our meetings are generally held in a classroom in White Hall. To get to White Hall turn onto Dowman Drive from North Decatur Road at the five way intersection (across from Everybody's Pizza). White Hall is located on the across from the new Science & Math building. Parking is available along Dowman Drive on both sides of the road. **The parking lot on the left behind the Admissions Building is now closed.** Additional parking is available in two parking decks near White Hall. For maps to the decks see <http://map.emory.edu>. For more detailed directions to Emory University, visit www.atlantaastronomy.org, to the Emory web site.

Georgia Astronomy in State Parks (GASP) Events

There is one more scheduled GASP event for 2007:

November 3rd - Red Top Mountain State Park

For more information about these events, contact Joanne Cirincione at Starrynights@AtlantaAstronomy.org.



The GASP volunteers at FDR State Park on Labor Day weekend 2004 - From left to right: Joanne Cirincione, Keith Burns, Harold and Claudia Champ with Ginger, Peter Macumber, Sharon Carruthers, Tom Faber, Kat Sarbell, and Holly and John Ritger. Photo by Holly Ritger.

The **Atlanta Astronomy Club, Inc.**, the South's largest and oldest astronomical society, meets at **8:00 P.M.** on the third Friday of each month at Emory University's White Hall or occasionally at other locations or times. Membership is open to all. 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.

AAC Officers and Contacts

President: Peter Macumber 770-941-4640
president@atlantaastronomy.org

Program Chair: Vacant programs@atlantaastronomy.org

Observing Chair: Daniel Herron 770-330-9679
observing@atlantaastronomy.org

Corresponding Secretary: Kat Sarbell 404-352-0652
focalpoint@atlantaastronomy.org

Treasurer: Sharon Carruthers Treasurer@AtlantaAstronomy.org

Recording Secretary: Rich Jakiel
secretary@atlantaastronomy.org

Board: Tom Crowley 404-233-6886 crowleytj@hotmail.com

Board: Brad Isley - Contact Info TBA

Board: Larry Wallace - Contact Info TBA

Board: Marc Sandberg 404-531-4227 sandberg235@earthlink.net

Board: Gil Shillcutt - Contact Info TBA

Board: Mark Banks - Contact Info TBA

ALCOR: Art Zorka 404-633-8822 (H) 404-824-7106 (C)
star.myth@juno.com

Elliott Ch. Director: Larry Owens planetographer@comcast.com

Elliott Observing Supervisor: Steve Bieger - 770-457-9148
sbieger@bellsouth.net

Elliott Recording Secretary: Clevis Jones cjones@aaahawk.com

Elliott Coordinator: Alesia Rast Alesia_Rast@mail.dnr.state.ga.us

Elliott Webmaster: Larry Owens planetographer@comcast.net

The Telescope Workshop: Dan Llewellyn 404-735-9661 or 404-633-7562
zoser@mindspring.com

Georgia Astronomy in State Parks: Joanne Cirincione 404-824-4751
starrynights@AtlantaAstronomy.org

Light Trespass: Marc Sandberg 404-531-4227
sandberg235@earthlink.net

AL Observing Programs Assistance: Keith Burns 770-427-1475
Keith_B@bellsouth.net

PSSG Chairman: Peter Macumber pmacumber@nightsky.org

Co-Chair: Joanne Cirincione starrynights@AtlantaAstronomy.org

Sidewalk Astronomy: Brad Isley
sidewalkastronomy@atlantaastronomy.com

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

Webmaster Atlanta Astronomy: Peter Macumber 770-941-4640
pmacumber@nightsky.org

Atlanta Astronomy Club Website

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 (when available) and other information. <http://www.atlantaastronomy.org>

Calendar by Tom Faber (All times EDT unless noted)

July 4th, Wednesday: Earth at Aphelion.

July 7th, Saturday: **Telescope & Instrument Workshop at Bradford Map/Telescope Atlanta - See p.2 for details. CEC Meeting - See p.3 for details.** Moon Last Quarter.

July 13th, Friday: Venus near Regulus.

July 14th, Saturday: **DSO at location DAV - Contact Daniel Herron for details.** New Moon.

July 16th, Monday: Moon near Venus, Saturn, and Regulus.

July 20th, Friday: **AAC Meeting at White Hall, 8 PM, Emory University.**

July 21st, Saturday: **New member Orientation at Villa Rica - Contact Daniel Herron for details.**
July 22nd, Sunday: Moon First Quarter.

July 29th, Sunday: Full Moon (Thunder Moon or Hay Moon).

August 4th, Saturday: **Telescope & Instrument Workshop at Bradford Map/Telescope Atlanta - See p.2 for details.**

August 5th, Sunday: Moon Last Quarter.

August 7th, Tuesday: Moon near M45.

August 11th, Saturday: **DSO at location TBA - Contact Daniel Herron for details.**

August 12th, Sunday: New Moon.

August 13th, Monday: Perseid Meteors (Morning). Neptune at Opposition.

August 16th, Thursday: Venus at Inferior Conjunction.

August 17th, Friday: **AAC Meeting at White Hall, 8PM, Emory University.**

August 18th, Saturday: **CEC Meeting - See p.3 for details.**

August 20th, Monday: Moon First Quarter.

August 21st, Tuesday: Saturn Conjunction with Sun.

August 28th, Tuesday: Full Moon - Total Eclipse begins at 5:52AM.

August 29th, Wednesday: Vesta 0.4 deg north of Jupiter.

September 1st, Saturday: Saturn near Regulus.

September 2nd, Sunday: Moon near M45.

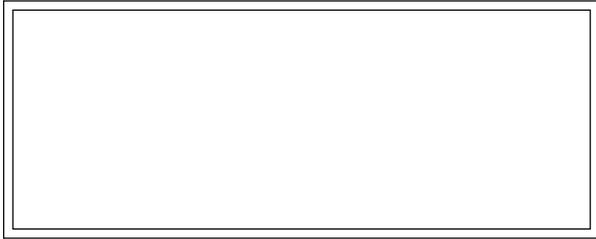
Atlanta Astronomy Club Listserve

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 related to [Kat Sarbell at focalpoint@atlantaastronomy.org](mailto:KatSarbell@atlantaastronomy.org). Please send images separate from articles, not embedded in them. Articles are preferred as plain text files but Word documents are okay. You can submit articles anytime up and including the deadline date. **The deadline for August is Thursday, July 26th at 4:00 PM ... Submissions will no longer be accepted after the deadline.**

FIRST CLASS



The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

FROM:

Kat Sarbell

506 Treeridge Parkway
Alpharetta, GA 30022

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