

# The Focal Point

The Atlanta Astronomy Club  
Established 1947  
July 2005

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Editor: Kat Sarbell

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## July General Membership Meeting

By Keith "Kosmic Kow" Burns

The next General meeting of the Atlanta Astronomy Club will be on July 15th at 8 P.M. at Emory University in White Hall. Directions to White Hall are on page 7. We will have refreshments in the hallway just outside of the room before the meeting. A small donation in the kitty box is requested by not required.

The meetings consist of three parts. Part one consists of a 15 minute business meeting. This includes any announcements of meetings, upcoming events, presentation of awards, and things of general interest. From time to time, we will have a club member do a five minute presentation on a project they are working on which is related to a current event in astronomy. Second are our featured speakers for the night. This also includes questions and answers time permitting. Third we adjourned the meeting and head off to a local eating establishment for supper, dessert, and/or just a drink.

This month we will have two talks. Yes, I said two talks. Each talk will last about 30 minutes. The first speaker is Daniel Herron. In today's age of digital setting circles and computer driven scopes star hopping is slowly becoming a forgotten skill. But what do you do when the power goes out, or batteries run down, pack up and call it a night? "Star hopping is not just a way to locate objects in the sky; it is a fun hunt with enjoyable views along the way!" Daniel says. During this month's general meeting, Daniel will give a presentation on How to Star Hop. He will discuss the what, why and how of star hopping and give tips to star hopping and then will demonstrate star hopping. While the presentation tailored to new comers to star hopping, he hopes experienced observers will enjoy the presentation as well.

Daniel Herron has been a club member since May 2004, but has been actively observing since 1996. He started out using a film camera to get pictures of star trails and the constellations over his house in South Carolina. After he moved to Atlanta in 1999 he did what he could to

observe the planets through the light polluted skies, but it was not until he joined the club in 2004 that he started going outside the city and the solar system to observe.

The second speaker is Art Zorka. Art's talk will be on building and using web cams in astronomical imaging. He will provide information on how to build one and more importantly, how to use one. This is a cheap way to do astro imaging and get good results on a small budget. In recent years, this type of imaging system has drawn a lot of attention from amateur astronomers. So sit back and find out what to do and what not to do without actually having to make mistakes.

## The Next AAC Board Meeting

Hello All,

The next board meeting is scheduled for July 14th, 7:30, at Dan Llewellyn's shop in Sandy Springs.

This looks to be an exciting year for the club, and I have many things to discuss with the board that I believe will benefit the membership greatly. Come to the board meeting and hear the plans.

All members are welcome to come and see what we will be working on over the coming year and to give us some of your valuable input. Please contact Dan for directions.

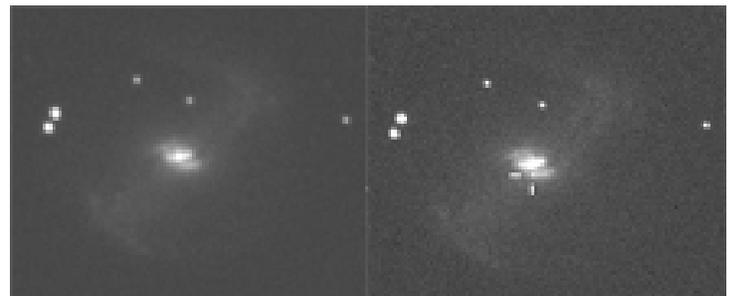
Board Members - If you can not make it please contact me...

Best Regards,

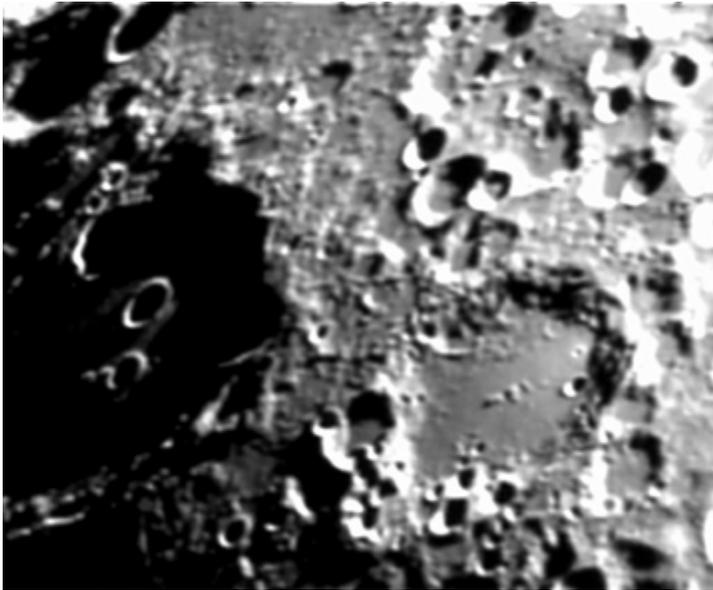
Philip Sacco, President AAC

## Highlights from June AAC Meeting

In addition to Dr. Chris DePree's talk on "The Copernican Revolution: Art and Astronomy in Krakow, Prague, Venice and Florence", club member Alex Langoussis presented a talk on the search for supernovae as a member of the Tim Puckett supernova search team. Member Rich Jakiel then gave a talk on lunar and planetary imaging with a low cost webcam type camera. Below are some images from their talks. (*Rich's images on the next page*)



NGC 5383, Before and After. Right: 2002 July 9, left: 2005 May 19. Note supernova (tick marks) in the 2005 image. Images courtesy Tim Puckett.



*Rich Jakiel took these pictures using a webcam type camera. Top: The Clavius-Maginus region on the Moon. Bottom: Jupiter, picture taken on June 9th.*

FEATURED PROGRAM: Jerry Armstrong, "Space Artist", comet hunter and supernova discoverer, presented a slide show and talk of great interest covering digital astrophotography with cameras from the super cheap to the grossly expensive!

OBSERVING SESSION: There were about a dozen observers on the field after the meeting.

## Charlie Elliott Chapter Future Meetings

by Clevis Jones

Meeting Dates and Programs:

Place: CE Visitor's Center presentation room. Enter through the left side door nearest the back of the building.

July 9, 2005, at 5:00 PM

- What's Up Tonight: Steve Bieger
- Astronomy Current Events: Clevis Jones

Feature presentation: "Pot Luck Dinner"

Everyone is welcome! The Charlie Elliott Chapter is having a "Pot Luck" dinner at the Visitor's Center. Bring a covered dish, or just enjoy dinner with friends. Everyone is welcome! If you're attending the AAC's DSO event, come early - plan to have dinner with us! We'll have you on the field before sunset for scope setup. Special note: Just for our event, the wildlife exhibits and shop at the Visitor's Center will remain open! The shop features wildlife related gifts, and even includes a selection of astronomy handbooks! Have dinner, enjoy a presentation and take a tour of the Visitor's Center!

August 6, 2005 - 5:00 - 7:30 PM

- What's Up Tonight - TBD
- Astronomy Current Events - TBD

Feature Presentation: "Mars Opposition 2005", Dr. Richard Schmude Lecture. Please join Dr Richard Schmude for an entertaining and informative preview of the 2005 opposition of the planet Mars. Everyone is welcome!

Please check the CEC website for the most current meeting information: <http://www.atlantaastronomy.org/CEWMA/>

## The Telescope & Instrument Workshop (T&IW formerly The ATM Group)

by Sharon Carruthers

Why did we call this the T&IW instead of the standard ATM (Amateur Telescope Makers)? 'Cause we thought ATM made it sound like all we did was make telescopes, which might keep people away (O.K., maybe that was dumb). But we are dedicated to ALL the NON-OBSERVING needs of our members - problems and projects with telescopes, binoculars, mounts, motors, optics, equipment and accessories.

We are the place to bring new scope that you just can't get to work!!

We don't offer formal classes - it is all driven by networking and mentoring. Show up & we will find someone to help you. We will offer specific topics (i.e. collimation, cleaning optics, mirror grinding & testing) at a meeting if our attendees express an interest. (The previous ATM group started on a 16" Dob for the Club - we would like to see work on that moving forward again.)

Meetings will be on Saturday morning at 11:00 a.m. (unless people want to change this) and will be on the Saturday after the General Meeting for the next 3 months (these are Full Moon weekends). Our next meeting will be on July 16, and the topic will be announced. Future meetings will be on August 20, Sept 17, and Oct 15 (this is the Saturday BEFORE the General Meeting, which is on Oct 21). *Continued on next page*

## Charlie Elliott June Meeting Minutes

by Clevis Jones, CEC Recording Secretary

Saturday, June 4, 2005

ATTENDANCE: Seventeen members and guests.

BUSINESS: CEC Director, Larry Owens, reviewed the May election results for both the AAC and CEC. The new CEC Officers are Larry Owens, Director; Steve Bieger, Observing Supervisor (volunteered, appointed by Larry Owens); and Clevis Jones, Recording Secretary.

Larry Owens committed to complete the Byers mount project by the end of August. He reported that the 2nd 16" Starfinder Dob given to the CEC by Missy Wood is in need of a new sono tube (or rebuild as a tube truss assembly) and recoating with possible resurfacing of the 16" mirror. He said AAC President Philip Sacco indicated there are AAC funds available to assist with the 2nd 16" restoration. Larry has asked for a volunteer or two for the 2nd 16" refurbishing project. In addition, Larry could use some help with the manual labor for the Byers mount project. To volunteer, and/or for further information, Larry Owens may be contacted at [planetographer@comcast.net](mailto:planetographer@comcast.net).

OBSERVING REPORT - What's Up Tonight: Larry Owens gave a brief but informative report covering current events and what's up tonight.

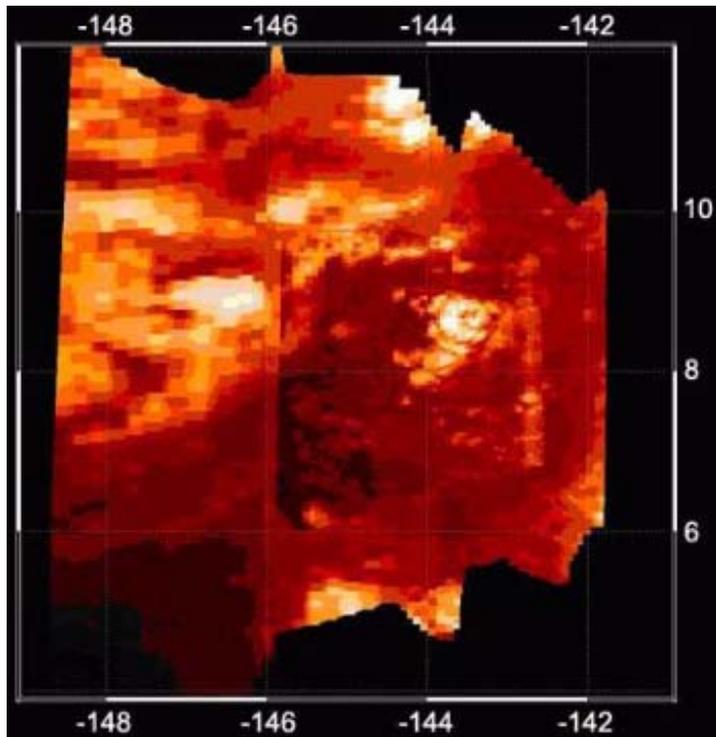
Location: Bradford Map, Globe & Telescopes, 300 Hammond Dr,  
ATLANTA 30328 (Sandy Springs)

For More info, contact: Dan Llewellyn at [zoser@mindspring.com](mailto:zoser@mindspring.com) or  
404-633-7562 (W); or

Sharon Carruthers at [Treasurer@AtlantaAstronomy.org](mailto:Treasurer@AtlantaAstronomy.org) or 770-941-4640  
(H); 404-843-9610 (W)

## Saturn Exploration Gallery

Enjoy some of the latest images of Saturn, its rings, and moons  
from the Cassini spacecraft on the next few pages.



NASA/JPL/University of Arizona

## Infrared Image of Titan Volcano

June 8, 2005 Full-Res: PIA07962

This high-resolution infrared image was taken during the Cassini spacecraft's closest approach to Titan on Oct. 26, 2004. These images were obtained by Cassini's visual and infrared mapping spectrometer instrument and show a bright, circular feature (8.5 degrees latitude, minus 143.5 degrees longitude) with two elongated wings extending westwards. Scientists think this feature might be a volcano.

The resolution in the image varies from 2.6 kilometers (1.6 miles) per pixel to 1.8 kilometers (1.1 miles) per pixel.

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate, Washington, D.C. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The visual and infrared mapping spectrometer team is based at the University of Arizona.

For more information about the Cassini-Huygens mission visit <http://saturn.jpl.nasa.gov>. For additional images visit the VIMS page at <http://www.vims.lpl.arizona.edu>.

## NASA's Cassini reveals lake-like feature on Titan

NASA/JPL NEWS RELEASE

June 28, 2005 - Image PIA06240

Scientists are fascinated by a dark, lake-like feature recently observed on Saturn's moon Titan. NASA's Cassini spacecraft captured a series of images showing a marking, darker than anything else around it. It is remarkably lake-like, with smooth, shore-like boundaries unlike any seen previously on Titan.

"I'd say this is definitely the best candidate we've seen so far for a liquid hydrocarbon lake on Titan," said Dr. Alfred McEwen, Cassini imaging team member and a professor at the University of Arizona, Tucson. The suspected lake area measures 234 kilometers long by 73 kilometers wide (145 miles by 45 miles), about the size of Lake Ontario, on the U.S. Canadian border.

"This feature is unique in our exploration of Titan so far," said Dr. Elizabeth Turtle, Cassini imaging team associate at the University of Arizona. "Its perimeter is intriguingly reminiscent of the shorelines of lakes on Earth that are smoothed by water erosion and deposition."

The feature lies in Titan's cloudiest region, which is presumably the most likely site of recent methane rainfall. This, coupled with the shore-like smoothness of the feature's perimeter makes it hard for scientists to resist speculation about what might be filling the lake, if it indeed is one.

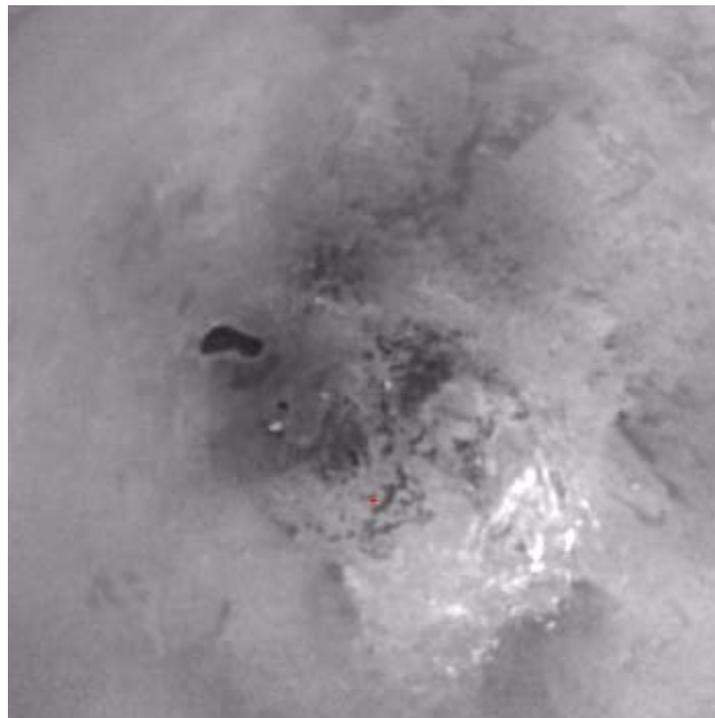
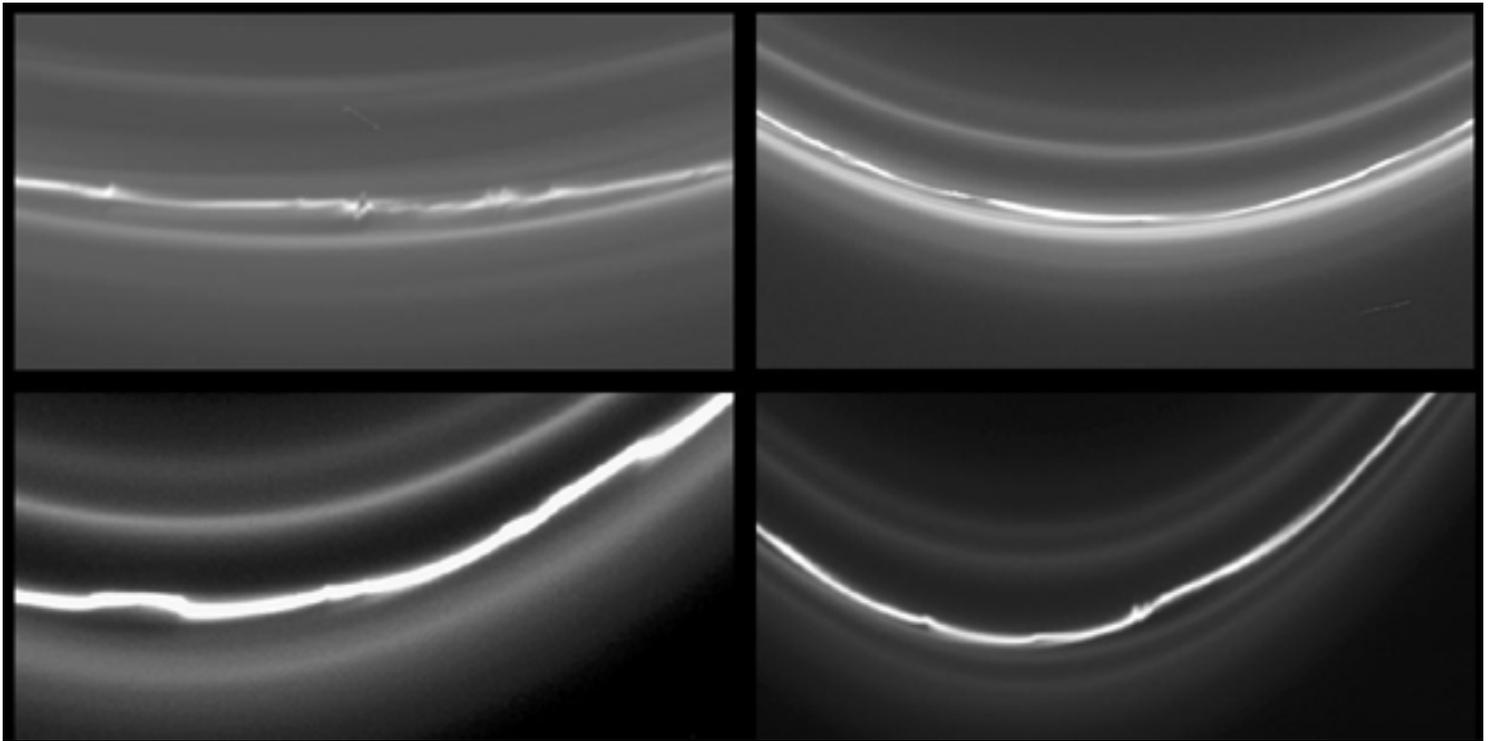


Image Credit: NASA/JPL/Space Science Institute

"It's possible that some of the storms in this region are strong enough to make methane rain that reaches the surface," said Cassini imaging team member Dr. Tony DelGenio of NASA's Goddard Institute for Space Studies in New York.

"Given Titan's cold temperatures, it could take a long time for any liquid methane collecting on the surface to evaporate. So it might not be surprising for a methane-filled lake to persist for a long time," DelGenio added.



NASA/JPL/Space Science Institute

## Cassini gives four views of Saturn's strange F ring

Cassini Photo Release - Image PIA07522

June 19, 2005

This montage of four images of Saturn's knotted F ring shows different locations around the ring, even though all taken within a few hours of each other. There is



considerable variation in the structure of the ring at these four locations.

For example, the number of ring strands differs from image to image. And in some images, kinks are clearly visible in the ring, while others regions appear more smooth.

Astronomers believe that the structure of Saturn's F ring is governed by its shepherding moons, Prometheus (102 kilometers, or 63 miles across) and Pandora (84 kilometers, or 52 miles across). The ring's appearance is expected to vary depending on how recently a ring section has encountered each moon and how close the moon came to the ring.

These images were taken in visible light with the Cassini spacecraft narrow-angle camera from below the ringplane and at distances ranging from 735,000 to 952,000 kilometers (457,000 to 592,000 miles) from Saturn. The image scale ranges from 4 to 6 kilometers (2 to 4 miles) per pixel.

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate, Washington, D.C. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The imaging team is based at the Space Science Institute, Boulder, Colo.

*"One Ring to rule them all..." - J.R.R. Tolkien*

Despite earlier predictions, no definitive evidence for open bodies of liquid has been found on Titan. Cassini has not yet been in a favorable position for using its cameras to check for glints from possible surface liquids in the south polar region.

"Eventually, as the seasons change over a few years, the convective clouds may migrate northward to lower latitudes," said DelGenio, "If so, it will be interesting to see whether the Cassini cameras record changes in the appearance of the surface as well."

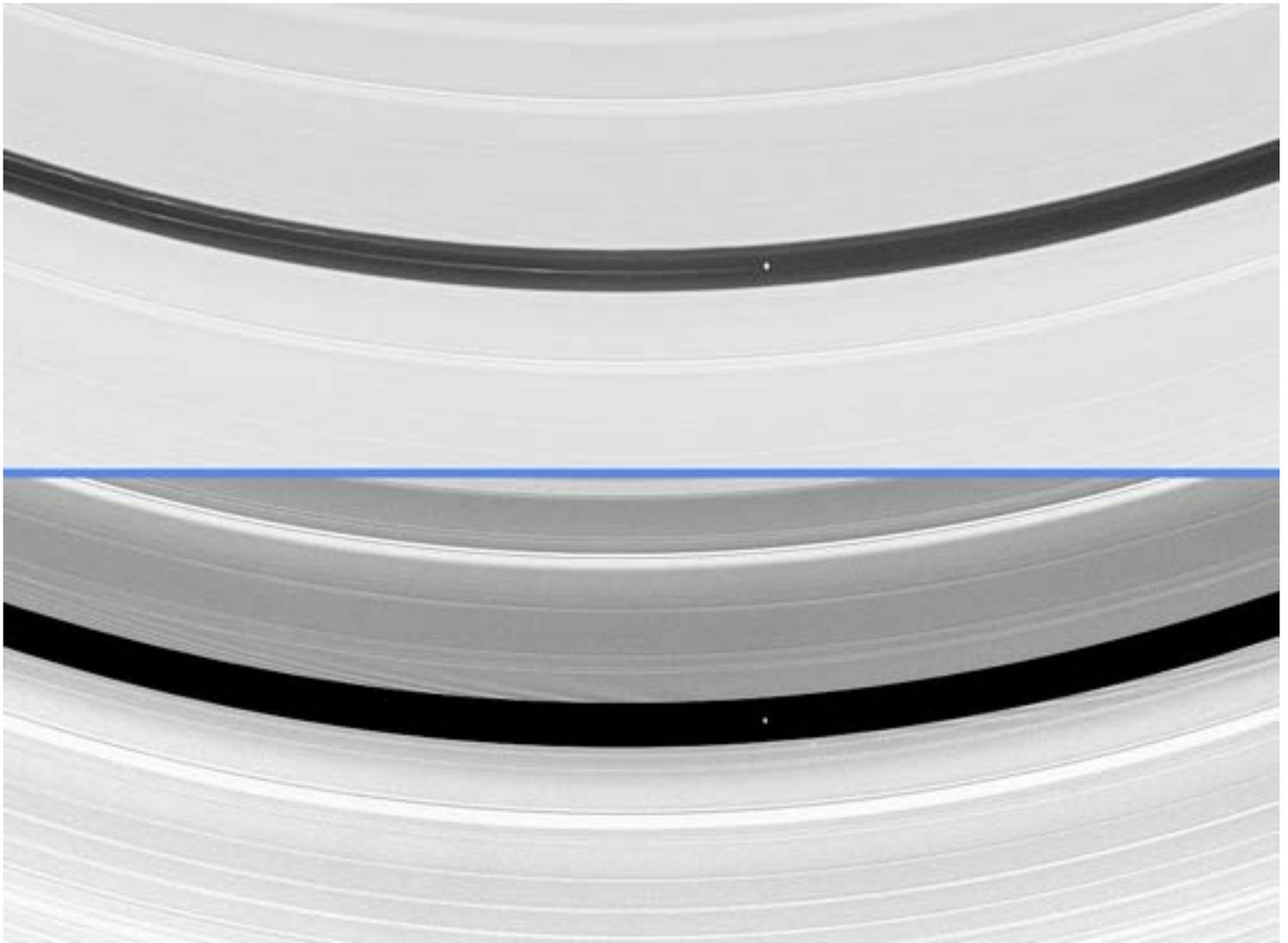
"An alternate explanation is that this feature was once a lake, but has since dried up, leaving behind dark deposits," Turtle said. Yet another possibility is that the lake is simply a broad depression filled by dark, solid hydrocarbons falling from the atmosphere onto Titan's surface. In this case, the smooth outline might be the result of a process unrelated to rainfall, such as a sinkhole or a volcanic caldera.

"It reminds me of the lava lakes seen on Jupiter's moon, Io," Dr. Torrence Johnson, an imaging team member at NASA's Jet Propulsion Laboratory in Pasadena, Calif.

"It is already clear that whatever this lake-like feature turns out to be, it is only one of many puzzles that Titan will throw at us as we continue our reconnaissance of the surface over the next few years," said Dr. Carolyn Porco, imaging team leader at the Space Science Institute in Boulder, Colo.

Thirty-nine more Titan flybys are planned for Cassini's prime mission. In future flybys the science teams will search for opportunities to observe the lake feature again and to look for mirror-like reflections from smooth surfaces elsewhere on Titan. Such reflections would strongly support the presence of liquids.

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## Revealing Pan's Influence

June 24, 2005      Image PIA07528

Saturn's moon Pan is seen here orbiting within the Encke Gap in Saturn's A ring in two differently processed versions of the same Cassini image. The little moon is responsible for clearing and maintaining this gap, named for Johann Franz Encke, who discovered it in 1837. Pan is 20 kilometers (12 miles) across.

The top image reveals two of the faint, dusty ringlets that occupy the gap along with Pan. One of the ringlets occupies nearly the same orbit as Pan, while the other is closer to the gap's inner edge. Not only do the ringlets vary in brightness, but they also appear to move in and out along their length, resulting in notable "kinks," which are similar in appearance to those observed in the F ring (see *Outsider Moon*). One possible explanation for the complex structure of the ringlets is that Pan may not be the only moonlet in this gap.

Pan is responsible for creating stripes, called 'wakes,' in the ring material on either side of it. Since ring particles closer to Saturn than Pan move faster in their orbits, these particles pass the moon and receive a gravitational "kick" from Pan as they do. This kick causes waves to develop in the gap where the particles have recently interacted with Pan (see *The Encke Gap as Never Seen Before*), and also throughout the ring, extending hundreds of kilometers into the rings. These waves intersect downstream to create the wakes, places where ring material has bunched up in an orderly manner thanks to Pan's gravitational kick.

*NASA/JPL/Space Science Institute*

In the bottom image, the bright stripes or wakes moving diagonally away from the gap's edges can be easily seen. The particles near the inner gap edge have most recently interacted with Pan and have just passed the moon. Because of this, the disturbances caused by Pan on the inner gap edge are ahead of the moon. The reverse is true at the outer edge: the particles have just been overtaken by Pan, leaving the wakes behind it.

This image was taken in visible light with the Cassini spacecraft narrow-angle camera on May 18, 2005, at a distance of approximately 1.6 million kilometers (1 million miles) from Pan and at a Sun-Pan-spacecraft, or phase, angle of 44 degrees. The image scale is 9 kilometers (6 miles) per pixel.

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate, Washington, D.C. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The imaging team is based at the Space Science Institute, Boulder, Colo.

For more information about the Cassini-Huygens mission visit <http://saturn.jpl.nasa.gov>. The Cassini imaging team homepage is at <http://ciclops.org>.

## Pandora's flocks observed by NASA's Cassini orbiter

Cassini Photo Release - Image PIA07523

June 19, 2005

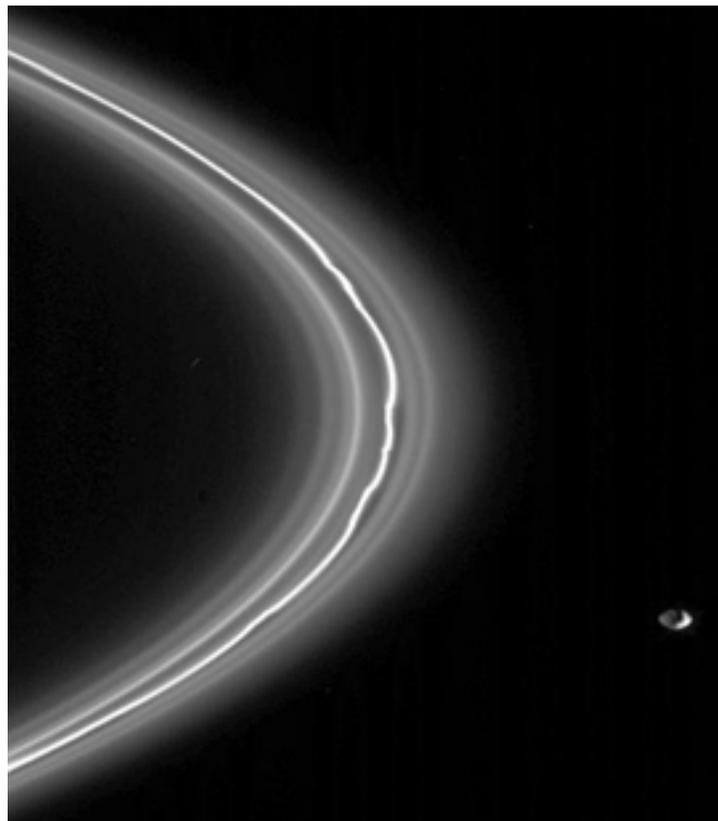
The shepherd moon, Pandora, is seen here alongside the narrow F ring that it helps maintain. Pandora is 84 kilometers (52 miles) across.

Cassini obtained this view from about four degrees above the ringplane. Captured here are several faint, dusty ringlets in the vicinity of the F ring core. The ringlets do not appear to be perturbed to the degree seen in the core.

The appearance of Pandora here is exciting, as the moon's complete shape can be seen, thanks to reflected light from Saturn, which illuminates Pandora's dark side. The hint of a crater is visible on the dark side of the moon.

The image was taken in visible light with the Cassini spacecraft narrow-angle camera at a distance of approximately 967,000 kilometers (601,000 miles) from Pandora and at a Sun-Pandora-spacecraft, or phase, angle of 117 degrees. The image scale is 6 kilometers (4 miles) per pixel.

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate, Washington, D.C. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The imaging team is based at the Space Science Institute, Boulder, Colo.



NASA/JPL/Space Science Institute



## Are meteor showers misunderstood?

SETI Institute News Release

Posted: June 15, 2005

NASA's Deep Impact mission is about to smash into comet 9P/Tempel 1 to excavate a crater and probe the comet's internal structure. It's possible, however, that the comet will break into fragments, creating a cloud of meteoroids. That, say astronomers, may not be unnatural.

"If comet 9P/Tempel 1 breaks during NASA's Deep Impact mission on July 4, a meteoroid stream will be created in much the same manner as the mechanism that causes most of our meteor showers," according to SETI Institute astronomer Dr. Peter Jenniskens in a paper accepted for publication in the *Astronomical Journal*.

Jenniskens has discovered a fragment of lost comet D/1819 W1 (Blanpain), last seen in 1819. It has survived for 36 orbits, and was detected on November 22, 2003 by the Catalina Sky Survey as a minor planet called 2003 WY25. It passed Earth at a distance of only 0.025 AU (3.7 million kilometers) on December 11, 2003. After its orbit was better determined, Jenniskens traced the object back to that of Blanpain in 1819. 2003 WY25 is a tiny object, only 400 meters in diameter, assuming that, like similar objects, it reflects about 4% of the sunlight that hits it.

Jenniskens and co-author Esko Lyytinen, an amateur astronomer from Finland, calculated how the debris of a breakup in 1819 would have spread under the influence of planetary perturbations. They discovered that a breakup during (or just before) the return of 1819 can explain a spectacular shower of meteors that radiated from the constellation of Phoenix in 1956. In that year, the planet Jupiter had steered the trail of debris into Earth's path.

"The 19th century idea that meteor showers originate from the breakup of comets went into remission after astronomer Fred Whipple, in 1951, developed a quantitative description of meteoroid acceleration by the drag of water vapor," says Jenniskens. "Ever since, meteor showers were thought to be caused by the gradual ejection of meteoroids when the comet's ices evaporated on approach to the Sun."

Instead, it now appears that many meteoroid streams are caused by wholesale disintegration of comets, which are loose assemblages of cometsimals and are known to frequently break apart. There are several possible causes of such fragmentations, one of which is collisions with large meteoroids such as simulated in the Deep Impact mission.

Last year, Jenniskens identified minor planet 2003 EH1 in the orbit of the strong Quadrantid shower of January, and argued that the object was the residue of a broken comet giving rise to the Quadrantid shower. A comet seen in A. D. 1490 - 1491 (C/1490 Y1) was perhaps the manifestation of that breakup.

The detection of 2003 WY25 provides a second example of the formation of a meteoroid stream by the disintegration of a comet. Other well known meteor showers that likely originated from the breakup of a comet, according to Jenniskens, include the December Geminids (with remnant 3200 Phaethon), as well as the June Daytime Arietids and July delta-Aquariids that are associated with the Marsden-group of sun-skirting comet fragments. It is now also likely that the spectacular meteor storms of Andromedids in 1872 and 1885 were due to the progressive fragmentation of comet 3D/Biela in 1846 and 1852.

Dr. Jenniskens is chair of the Pro-Amat working group of Commission 22 (meteoroids and interplanetary matter) of the International Astronomical Union.

Reference: P. Jenniskens, E. Lyytinen, 2005. Meteor Showers from the Debris of Broken Comets: D/1819 W1 (Blanpain), 2003 WY25, and the Phoenicids. *Astronomical Journal* (in press).

## GASP (Georgia Astronomy in State Parks) Events

Here are the remaining GASP events schedule for 2005:

September 3rd - FDR State Park.

October 8th - Florence Marina State Park

November 19th - Unicoi State Park.

For information about these events, contact Joanne

Cirincione at [Starrynights@AtlantaAstronomy.org](mailto:Starrynights@AtlantaAstronomy.org).

*The GASP volunteers, 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 at FDR State Park on Labor Day weekend 2004.*



## Editor's Note

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 reviewing 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 can save. Just send an email to Kat Sarbell ([FocalPoint@AtlantaAstronomy.Org](mailto:FocalPoint@AtlantaAstronomy.Org)) requesting that your name be removed from the Focal Point mailing list.

## Directions to White Hall at Emory

Meeting Location Information:

Turn onto Dowman Drive from North Decatur Road at the five way intersection (across from Everybody's Pizza). White Hall is located on the right across from the new Science & Math building. Parking is available along Dowman Drive on both sides of the road. There is also a gated parking lot on the left behind the Admissions Building. After 6PM there is no fee to park there. For more detailed directions on how to get to Emory University, visit [www.atlantaastronomy.org](http://www.atlantaastronomy.org).

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. 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 **\$29** 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 is:** Atlanta Astronomy Club, PMB 305, 3595 Canton Road A9, Marietta, Georgia 30066.

Atlanta Astronomy Club Hot Line: Timely information on the night sky and astronomy in the Atlanta area. Call **770-621-2661**.

Internet Home Page: <http://www.AtlantaAstronomy.Org>

Send suggestions, comments, or ideas about the website to [webmaster@AtlantaAstronomy.org](mailto:webmaster@AtlantaAstronomy.org). Also send information on upcoming observing events, meetings, and other events to the webmaster.

## AAC Contacts

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**Sidewalk Astronomy:** Mark Banks 404-257-2766  
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**Webmaster Atlanta Astronomy:** Peter Macumber 770-941-4640  
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## 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 3rd, Sunday: Mercury & Venus in M44.  
July 5th, Tuesday: Earth at Aphelion.  
July 6th, Wednesday: Moon New.  
July 7th, Thursday: Conjunction Mercury-Venus.  
July 8th, Friday: Grouping of the Moon, Mercury, & Venus.  
July 9th, Saturday: Mercury at Eastern Elongation. DSO at Charlie Elliott - Contact Daniel Herron for details.  
July 14th, Thursday: Moon First Quarter. AAC Board Meeting at Bradford Map, Globe & Telescopes, 7:30PM  
July 15th, Friday: AAC Meeting. 8PM. White Hall at Emory University.  
July 16th, Saturday: Telescope & Instrument Workshop at 11AM - Contact Sharon Carruthers.  
July 17th, Sunday: Moon near Antares (Grazing occultation just south of Atlanta).  
July 21st, Thursday: Moon Full.  
July 22nd, Friday: Venus near Regulus.  
July 23rd, Saturday: Saturn conjunction with Sun.  
July 27th, Wednesday: Moon Last Quarter - near Mars. Delta Aquarids South meteor shower.  
July 30th, Saturday: Open House at Villa Rica - Contact Daniel Herron for details.  
August 4th, Thursday: Moon New.  
August 6th, Saturday: Mercury Inferior Conjunction. DSO at Brasstown Bald - Contact Daniel Herron for details.  
August 7th, Sunday: Moon near Venus.  
August 8th, Monday: Neptune Opposition.  
August 12th, Friday: Moon First Quarter. Perseid meteor shower.  
August 19th, Friday: AAC Meeting. Moon Full.  
August 20th, Saturday: Telescope & Instrument Workshop at 11AM - Contact Sharon Carruthers.

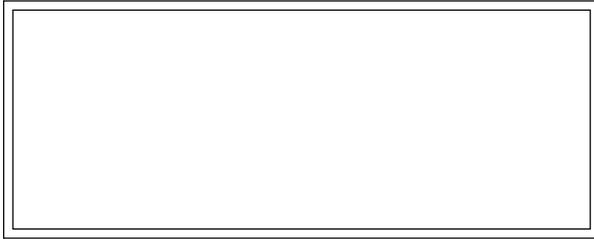
## Atlanta Astronomy Club Listserve

Subscribe to the Atlanta Astronomy Club Mailing List: The name of the list is: AstroAtlanta. The address for messages is: [AstroAtlanta@yahoogroups.com](mailto:AstroAtlanta@yahoogroups.com) . To add a subscription, send a message to: [AstroAtlanta-subscribe@yahoogroups.com](mailto:AstroAtlanta-subscribe@yahoogroups.com) . This list is owned by Lenny Abbey.

## Focal Point Deadline and Info

Please send articles, pictures, and drawings in electronic format on anything astronomy related to Kat Sarbell at [focalpoint@atlantaastronomy.org](mailto:focalpoint@atlantaastronomy.org). You can submit articles anytime up and including the deadline date. **The deadline for August is Thursday, July 28th 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

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Atlanta, GA 30309

[We're here to help! Here's how to reach us:](#)

Atlanta Astronomy Club

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