The Focal Point

The Atlanta Astronomy Club
Established 1947
July 2006

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Editor: Kat Sarbell

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July General Membership Meeting

By Keith "Kosmic Kow" Burns, AAC Program Chair

The next general meeting of the Atlanta Astronomy Club will be on July 21st at 8 P.M. at Emory University at the Goodrich Whitehall building. 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 on how to get to the meeting are on page 7 of this publication.

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 via email 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. I need to know so I can put your information on a Powerpoint presentation slide that will run before and during the business meeting. Please have the announcement stuff to me by no later than July 17th.

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

His talk is titled "Johannes Kepler's Intelligent Design." Abstract: In the last few years, the theory labeled "Intelligent Design" (ID) has exacerbated long-standing conflicts between religion and science. I will address this issue from the perspective of the history of astronomy. Galileo's storied dispute with the Church is often seen as the first of many battles in which science triumphed over religion. However, a close look at the progressive and radical philosophy and science of Galileo's contemporary Johannes Kepler (1571-1630) may help us out of the false dilemmas that often characterize this issue. Kepler, in many ways a more unconventional thinker than Galileo, was the chief architect of modern astronomy.

Speaker bio: Paul Wallace is originally from Atlanta, Georgia where he was raised. He obtained his Associates of Science degree in Physics in 1988 from Young Harris College. Paul attended and graduated from Furman University with a Bachelors of Science degree in Physics in 1990. After that he attended Duke University and graduated with a Masters in Physics in 1992. He went on to get his Ph. D in Physics in 1996 from Duke University. Paul did his research at the TUNL High-Resolution Laboratory, a DOE-funded lab on Duke's campus.

He was a post-doc there for a while, and then took a visiting faculty position at Hampden-Sydney College in the Department of Physics and Astronomy. In 1998 Paul found his way to green and expansive Berry College in Mt. Berry, Georgia (near the burgeoning metropolis of Rome, 60 miles NW of Atlanta, his hometown), and here he remains. His interests have varied from nuclear structure physics to gamma-ray astronomy to the history of astronomy and its connection with issues of religion and science. Paul is currently working on a book to be used as the primary text for the Astronomy 120 he teaches. He also teaches other physics courses.

Paul is a member of the American Astronomical Society, the American Physical Society, the American Association of Physics Teachers, the American Association of Variable Star Observers, and the Vice President of the Rome Astronomy Club. He lives in Rome with his wife, Elizabeth and their two children, Henry and Julia.

Continued on next page

Upcoming Speakers and Programs

August 18th: Dennis Hands of GTCC Cline Observatory/Natural Science Center of Greensboro will talk about, " My Two Weeks On Mars."

September 15th: April Whitt of Fernbank Science Center will speak on a topic to be announced.

October 20th: Meeting cancelled due to the Peach State Star Gaze. This event will include several wonderful speakers who will talk on various topics of astronomical interest. Make your reservations and attend.

June 16th General Membership Meeting Minutes

By Richard Jakiel, AAC Recording Secretary

The meeting started promptly at 8:05 PM, with Peter Macumber presiding. Instead of the usual location of White Hall at Emory, the AAC met at the Bradley Observatory at Agnes Scott College. About 40 AAC members and their guests were in attendance.

The business portion of the meeting was shorter than normal, with the main focus shifted to reports from the observing chair and a report of upcoming GASP events. Sharon Carruthers stressed the importance of club participation at the Woodruff Boy Scout facility and the need for more volunteers.

Dr. Meyers gave an interesting and thorough presentation on Short Lived Radioactivities and the Birth of the Sun. He tied in the radiochemistry ("radioisotope fossils") of meteorites and of the early Solar system with mass injection events by an ancient supernova.

DAV Presentation: After Dr. Meyers' presentation, Tom Crowley gave a 20-minute talk highlighting the major details, status and profit sharing possibilities of the board-supported AAC-DAV agreement. Tom fielded numerous questions from AAC members and mentioned that more details (and an important vote) will be presented in the upcoming July Focal Point *(Editor's note: no additional information was submitted by the Focal Point deadline)* and July 21st General Meeting.

Charlie Elliott June Meeting Minutes

by Clevis Jones, CEC Recording Secretary

SPECIAL EVENT REPORT– CE Wildlife Center's "Overnight Summer ": Dr. Richard Schmude presented a program on meteors to twenty-two young teens and about six counselors on the evening of June 13, 2006. His presentation included a slide show, questions and answers, hands on demonstrations, and a meteorite souvenir. After Dr. Schmude's delightful presentation, Jon Wood, who had earlier set up his six inch refractor on a pier in front of the room, told the kids how it all worked and invited them up to view the new constellation, Tree-Bark, through his telescope. (We had a solid overcast, so the tree-bark was the best he could do.) The kids loved both presentations. Afterwards, Jon and I hung around and answered questions until about 9:30 p.m. when the counselors threw us out.

Charlie Elliott Chapter (CEC) Meeting Minutes: June 17, 2006

ATTENDANCE: Eighteen guests and members attended the June meeting.

BUSINESS: Larry Owens covered the latest status of the Byers mount project, CEC Website changes, and additional donations.

CALL FOR VOLUNTEERS: Regal Entertainment Atlantic Station 16 (cinemas in downtown Atlanta) has requested the Charlie Elliott Chapter set up an astronomy booth inside their lobby during the opening of the new movie, "Superman Returns". The event will take place from June 30 to July 2 with the times of our choice. If you would like to volunteer, please contact Larry Owens "ASAP" at either Director@CEastronomy.org or planetographer@CEastronomy.org. Jon Wood volunteered to design a flyer for the event and Larry will print it.

Jon Wood volunteered to present a program to the 22+ young teens and their counselors for the July 12, 2006 Charlie Elliott Summer Overnight Camp at 7:00 p.m.; Clevis Jones will assist. If you would like to help by bringing your binoculars or telescope for observing after the program, please contact Larry Owens at Director@CEastronomy.org or planetographer@CEastronomy.org - NOTE: this is a rain or shine event and if clouded out, you could help Jon and Clevis answer questions after Jon's presentation.

Announcements: Ken Poshedley reminded everyone there will an AAC membership vote regarding a contract with the Deerlick Village dark sky site at the AAC meeting Friday night, July 21. For information regarding the contract and vote, contact AAC Board Member Tom Crowley at crowleytj@HOTMAIL.COM [Note: maybe I'm missing it, but I don't see anything on the AAC Web-site about this.]

OBSERVING REPORT: Steve Bieger presented his usual excellent coverage of "What's Up Tonight".

CURRENT EVENTS REPORT: Clevis Jones covered current events including the July 1 proposed launch of STS 121.

FEATURE PRESENTATION: Dr. Richard Schmude, Jr. presented an excellent in-depth program on Jupiter.

OBSERVING SESSION: Many folks adjourned to, or were already on, the observing filed to see Mars and Saturn close together, Mercury, and of course, Jupiter.

Charlie Elliot Future Meetings

by Clevis Jones, CEC Recording Secretary

July 15 at 3:00 p.m. **NOTE – TIME CHANGE for this meeting only.**

3:00 p.m. to 5:00 p.m. - Chapter Donation Astronomy items rummage sale - one astronomer's rummage is another's treasure!

CEC will hold an Astronomy Rummage sale – ALL PROCEEDS ARE TO BE DONATED TO THE CHAPTER for projects. "Sorry, no personal profit from sales are allowed on Charlie Elliott property." Bring those items you no longer use – pick up some you've been wanting!

What's Up Tonight by Steve Beiger; Current Events by Clevis Jones; Feature Presentation: "The North East Astronomy Exposition" by Carlos Flores. Carlos will give us a report on his visit to that important exposition.

August 19 at 5:00 p.m. - What's Up Tonight by Steve Bieger; Current Events by Clevis Jones; Feature Presentation: "Byers Mount Training" by Larry Owens.

FOR UPDATES & DIRECTIONS: PLEASE check the CEC website for the most current meeting information - http://www.CEastronomy.org

July Dark Sky Observing

by Daniel Herron, AAC Observing Chair

The next DSO will be on July 22nd at Brasstown Bald. There will be a crew filming for Georgia Outdoors. Their interest is in imaging, so imagers come on out! Due to the filming there may be some lights on the field early after dark but the film dudes say that it will be at a minimum and can be away from the main observers if need be. This is a great way to get the word out on the club and what we do!

Information: At 4784 feet this is the highest point in Georgia. Please remember that a parking fee of 5 dollars is required to enter the parking lot. Also no tent camping is allowed on site. The Brasstown Bald parking area is located below the top of the mountain. The views to both the north and south are obscured some. Horizons are unlimited to the east and west. Bathrooms are located on the northwest corner of the parking area at the edge of the woods. Look for a stone building. I suggest you get there before dark so as to make it easier to find the place. Some of these mountain roads are hard to navigate after dark. Hope to see you there!

April Board of Directors Mtg Minutes

by Richard Jakiel, AAC Recording Secretary
Attendance: 7 Board of Directors (BoD) members on April 9th, 2006
Old Business:
Deer Lick Astronomy Village (DAV): Tom Crowley – still working on "fine" details.
Boy Scout Liaison: Phil Sacco reported Chuck Schwann was the AAC liaison. Motion: A BoD member to be appointed to assist C. Schwann for 1 year. Sharon Carruthers to assist passed by 7-0.
New Membership Categories: - report given by Ken Poshedly; used the ALPO membership categories as a working model.

-Tax Purposes – above the "basic level", tax deductible.
-Recognition of higher levels in the Focal Point.
-"Lifetime" membership suggested at 10x current rate.

Motion: The AAC needs to establish additional levels to be defined and funded as per the results of special committee as appointed by the BoD. Amendment to motion: Ken Poshedly needs to consider longtime ramifications of having "lifetime memberships". Committee appointees: Ken Poshedly, Sharon Carruthers, Tom Crowley. Motion passed: 7-0
5-Year Plan:
Motion: A formal 5-year plan that may be amended as needed by the AAC BoD. Passed: 7-0
North Georgia Chapter:

-According to Phil Sacco this currently stands at ~15 interested members.
-The chapter needs an "official" name.
-The bylaws should be along the lines of those currently used at CEWC, but with the modification of replacing chapter positions.

Passed: 7-0
New Member Social:

-Information to be posted to FP and web site; suggested to be run by Rauna Long and Elisa Roberts. Date set as May 20th, 2006

New Business:
Swap Meet at the New Member social; discussion of 5 yr. Plan.
Imaging Group @ Stooge's Field, committee headed by Daniel Herron.
Meeting adjourned at 6:55 PM.

Next AAC Board Meeting

The next Board Meeting of the Atlanta Astronomy Club is scheduled for Sunday, August 6th at 5:00PM at Bradford Map, Globe & Telescopes, 300 Hammond Dr, Sandy Springs.

Woodruff Boy Scout Summer Camp

by Sharon Carruthers, 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".

John Lentini will be retiring to the Keys this year and has passed over the Scout-AAC liaison duties to Chuck Swan and me. We had a very productive meeting with the whole scout leadership on Friday April 28th and have set up the needs and expectations for the coming camp season.

This year they would like our Club to take a more active role in the education process for the astronomy merit badge, then help out with some hands-on field observing with the Club's 24" (and the member's scopes, as well).

The preliminary plan is to have an astronomy "power point program (PPP)" starting around 9 p.m. on Monday night.

On Thursday "scope night" you would help set up the 24" about an hour before sunset (8:30 - 9 p.m.). The scouts will be on the field at 7:30 reviewing their skills and would be viewing with the scopes when it gets dark (from 9:30 p.m.). We will be scheduling training on the 24" before camp starts - contact us if you want to be trained for the summer program.

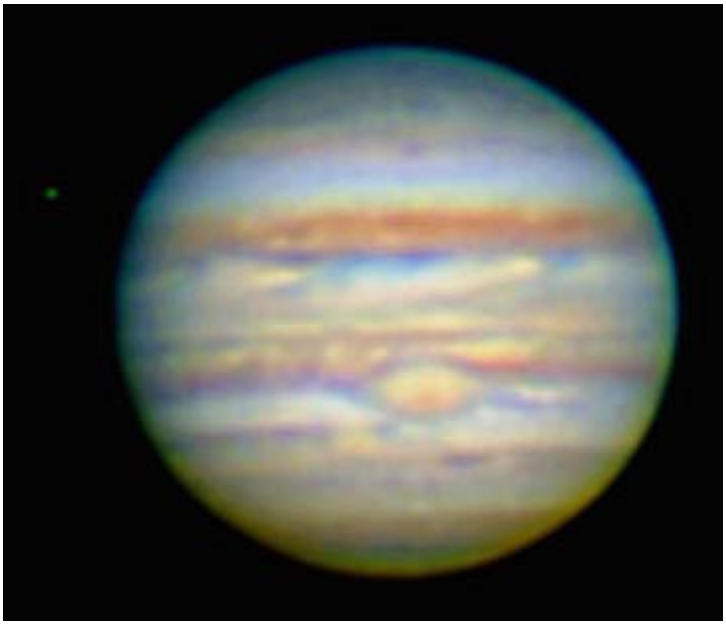
Chuck and I will commit to the Monday night PPP - but we welcome anyone else who would like to volunteer to help out. If you have ever wanted to do the astronomy "talk circuit", here is you chance to get some practice.

We need volunteers to commit to go up on Thursdays, from June 8 - July 27. Please phone or e-mail us if you can commit to one or more evenings. You can contact Chuck Swann at CharlesESwann@cs.com and myself, Sharon Carruthers, at scarruthers@AtlantaAstronomy.org, or at 770-941-4640 (h) or 404-843-9610 (w).

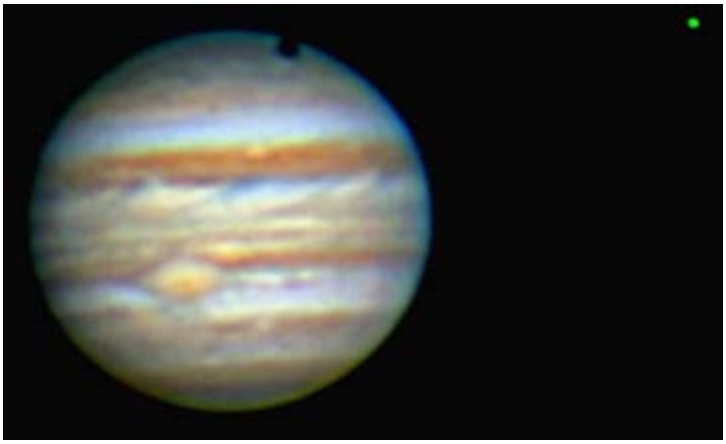
We want to thank John Lentini for his years of service as liaison between the Scouts and the AAC.

Jupiter Gallery

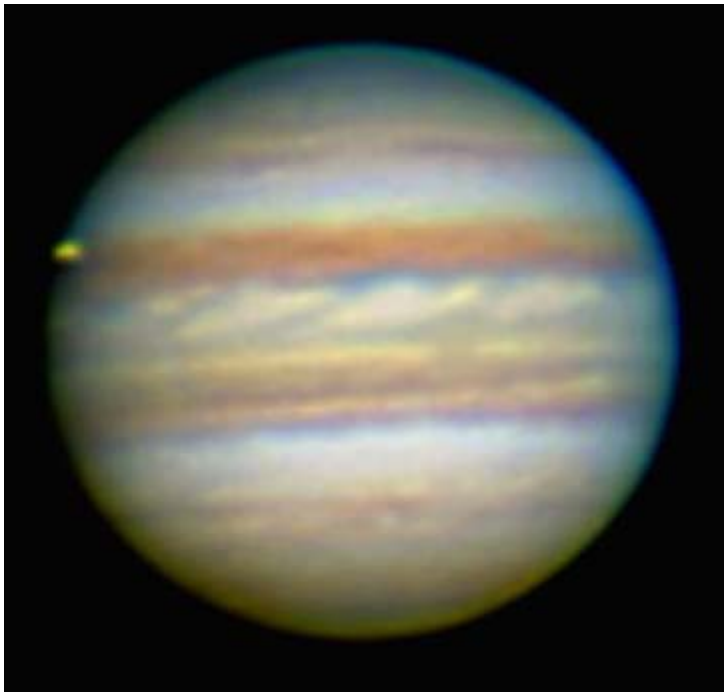
Enjoy these images of the "King of the Planets" by fellow AAC members.



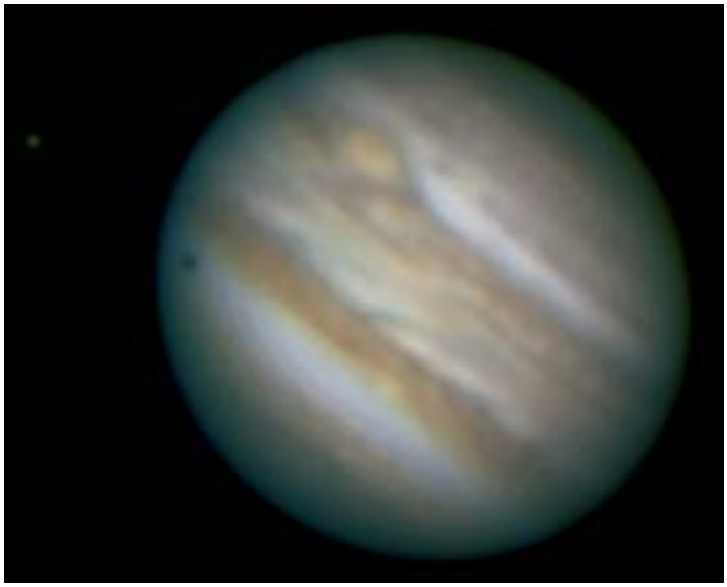
Jupiter & Europa. Photo by Rich Jakiel. 06-12-06 at 0406 UT. CMI = 92.4, CMII = 117.9, CMIII = 266.9. 12" LX 200 at f/20, NexImage cam. Seeing: good, 5 to 6 (out of 10), trans: 5 (out of 10) with a full Moon.



Jupiter & Ganymede. Photo by Rich Jakiel. 6-16-06 at 0238 UT. CMI = 108.3, CMII = 96.1, CMIII = 246.4. 12" LX 200 at f/20, NexImage cam. Seeing: fair 4 (out of 10). Trans: 6 (out of 10). Ganymede is casting a shadow, while the Great Red Spot and Oval BA ("Junior") with clear signs of interaction.



Jupiter. Photo by Rich Jakiel. 06-15-06 at 02202 UT. CMI = 288.4, CMII = 284.1, CMIII = 74.1. 12" LX200 at f/20, NexImage cam. Seeing: good 5.5 (out of 10). Transparency: 4 (out of 10). Io is beginning to transit the disk.



Dan Llewellyn took this photo of Jupiter from the Deerlick field on May 27.

NASA's Cassini Spacecraft Marks Mission Halfway Point

NASA / JPL News Release - June 28, 2006

As the Cassini spacecraft reaches the halfway mark in its four-year tour of the Saturn system, discoveries made during the first half of the mission have scientists revved up to find out what's in store for the second act. Cassini has been orbiting Saturn since June 30, 2004, studying the planet, its rings and moons.

"The spacecraft has spent a considerable amount of time studying the moon Titan during 15 separate flybys so far. In the second half of its prime mission, ending June 2008, Cassini will swing by Titan 30 more times," said Robert T. Mitchell, Cassini program manager at NASA's Jet Propulsion Laboratory, Pasadena, Calif. "The past two years have been just like a warm-up."

"We especially focused on Titan because we thought it could tell us something about the early Earth," said Dr. Toby Owen, Cassini interdisciplinary scientist at the University of Hawaii at Manoa. Owen added, "Examining this world frozen in time, we find evidence that Earth may have begun with the same methane-ammonia atmosphere that marked the birth of Titan. Because of our world's closeness to the Sun, Earth has oceans of liquid water, which Titan lacks. The resulting chemistry in Earth's warm environment ultimately led to the origin of life, whereas on Titan we find only a frozen echo of early Earth: methane, nitrogen, and a suite of small organic molecules. Our planet's carefully balanced, warm global climate is the underlying reason that we are investigating Titan, instead of Titanians investigating Earth."

Cassini's tour of the Saturnian system is about to take on a new pace. "This summer we will begin our express-ticket ride. That's 11 months with 17 Titan encounters and 51 spacecraft maneuvers to adjust the flight path, more than one maneuver per week," said Jerry Jones, Cassini chief navigator at JPL. The first of these encounters will be a Titan flyby on July 2, followed by the closest Titan encounter yet on July 22, at 950 kilometers above the surface.

Later in July, navigators will begin to flip the spacecraft's orbit orientation with respect to the sun by nearly 180 degrees, resulting in a bird's-eye view of Saturn's glorious rings. This transfer will take about one year.

"One of the biggest mysteries confronting Cassini is the changes we've seen in Saturn's radio emissions" said Dr. Bill Kurth, Cassini scientist at the University of Iowa, Iowa City. "We've seen the radio period, the frequency of emissions that tell scientists how fast or slow the planet is rotating, change by as much as one percent (or a few minutes) over just 10 years, and we don't know why. Pinning down how long the day is on Saturn is key to understanding other things, such as wind speed."

Cassini has quite a job to do during the second half of the mission to match the potpourri of discoveries in its first half.

The wealth of information from the Cassini spacecraft and the European Space Agency's Huygens probe, which descended through Titan's murky atmosphere to its surface, shows that Titan is remarkably Earth-like. There is evidence for methane rain, erosion, drainage channels, dry lake beds, possible volcanoes and vast dune fields that run for miles.

In addition to the Titan findings, Cassini also discovered three new moons, and some of the previously-known moons provided surprises. One of the most bizarre discoveries is a giant mountain range that runs the full length around the equator of Saturn's moon Iapetus. The mountains rival Olympus Mons on Mars, which is nearly three times the height of Mt. Everest. Other moons look like rubble piles.

Cassini also acquired the highest resolution images ever taken of the rings. Strange structures in the rings became apparent on the first day of the tour. Waves rip through the rings, while knots and banded structures shape them. Clumps of ice several kilometers wide are now appearing.

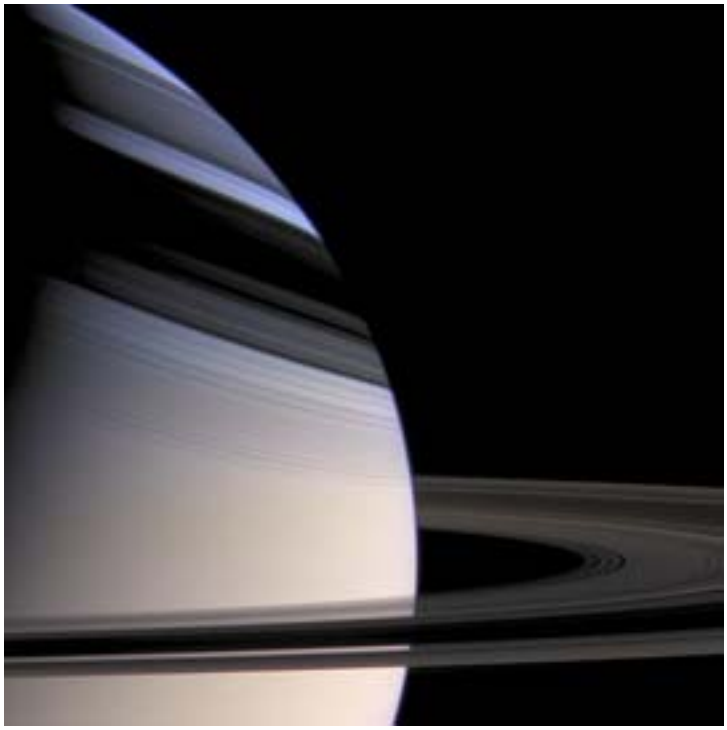
Scientists also witnessed moons influencing the rings. The moon Prometheus was caught stealing particles from the F-ring, while Enceladus seems to be contributing particles to Saturn's expansive E-ring. A whole new class of small moonlets may lie within Saturn's rings. New rings have also appeared, which may indicate the presence of tiny moonlets.

The true showstopper was the discovery of giant, icy geysers gushing from the surface of Enceladus. This evidence leads some scientists to believe there may be liquid water close to the surface.

Continued on next page

With all these discoveries in the first two years, it's little wonder Cassini scientists are anxiously waiting to see what else remains for their instruments to reveal in the next two years.

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 Cassini-Huygens mission for NASA's Science Mission Directorate, Washington. The Cassini orbiter was designed, developed and assembled at JPL.



Shadowy Rings

Few sights in the solar system are more strikingly beautiful than softly hued Saturn embraced by the shadows of its stately rings.

The gas planet's subtle northward gradation from gold to azure is a striking visual effect that scientists don't fully understand. Current thinking says that it may be related to seasonal influences, tied to the cold temperatures in the northern (winter) hemisphere. Despite Cassini's revelations, Saturn remains a world of mystery.

Currently, the rings' shadows shield the mid-northern latitudes from the harshest of the sun's rays. As Saturn travels around the sun in its 29-year orbit, the shadows will narrow and head southward, eventually blanketing the opposite hemisphere.

Images taken with blue, green and red spectral filters were used to create this color view, which approximates the scene as it would appear to the human eye. The view was brightened to enhance detail visible in the rings and within their shadows.

The images were obtained with the Cassini wide-angle camera from a distance of approximately 999,000 kilometers from Saturn on May 4, 2005, as the spacecraft cruised a few degrees above the ring plane. The image scale is about 60 kilometers per pixel on Saturn.

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

Credit: NASA/JPL/Space Science Institute

Pluto's Two Newly-Found Moons Named

Southwest Research Institute News Release - June 22, 2006

The names Nix and Hydra have been approved for the two small satellites of Pluto discovered in May 2005. The International Astronomical Union (IAU), the internationally recognized authority for assigning designations to celestial bodies, approved the names this week.

A team of researchers from Southwest Research Institute (SwRI), the Johns Hopkins University Applied Physics Laboratory (APL), the Space Telescope Science Institute and Lowell Observatory used Hubble Space Telescope images to make the discovery in support of NASA's New Horizons mission to Pluto and the Kuiper Belt beyond.

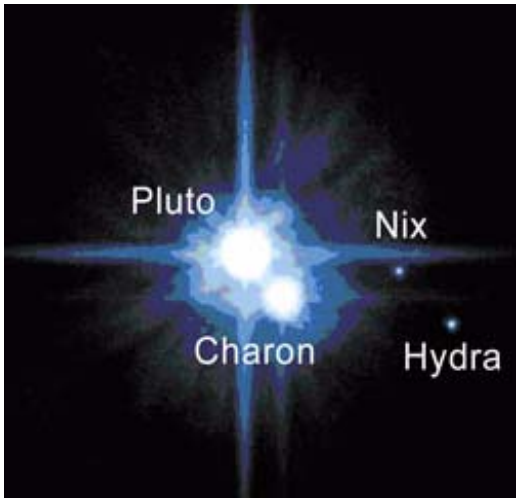
"We're very pleased with the decision of the IAU," says co-leader of the discovery team and New Horizons Principal Investigator Dr. Alan Stern of SwRI. "You're going to be hearing a lot more about Nix and Hydra in coming years -- astronomers are already applying for telescope time to study their orbits and physical properties. And when New Horizons flies by Pluto in the summer of 2015, each will be mapped in detail."

"Pluto doesn't reveal its moons easily," adds team co-leader and New Horizons Project Scientist Dr. Hal Weaver of APL. "It took 48 years after the discovery of Pluto to find Charon and another 27 years to find Nix and Hydra. Perhaps we won't have to wait as long for the next discovery because the New Horizons spacecraft will be making a rendezvous with Pluto in nine years and will be searching for other small satellites."

Nix and Hydra, roughly 5,000 times fainter than Pluto itself, are about two to three times as far from Pluto as its large moon, Charon, which was discovered in 1978. The nine-member discovery team selected the name Nyx for S/2005 P 2, the inner small satellite, and the name Hydra for S/2005 P 1, the outer small satellite. Because asteroid 3908 already bears the Greek name Nyx, the IAU changed Nyx to its Egyptian equivalent, Nix.

In mythology, Nix is the goddess of darkness and night, befitting a satellite orbiting distant Pluto, the god of the underworld. Nix is also the mother of Charon, relevant to the giant impact believed to have created Pluto's three satellites, indicating Charon was borne of the material from which Nix formed. Hydra is the terrifying monster with the body of a serpent and nine heads, befitting the outermost moon of Pluto, the ninth planet in the solar system.

In addition, just as Pluto's name begins with the letters "P" and "L" to honor Percival Lowell, who motivated the search that led to its discovery, Nix and Hydra honor the search for new satellites and the New Horizons mission to Pluto by starting with the letters "N" and "H." The first letter of Hydra also honors the Hubble Space Telescope that was used to detect the satellites.



Hydra and Nix, roughly 5,000 times fainter than Pluto, are about two to three times as far from Pluto as its large moon, Charon. The brighter, outer small satellite, Hydra, was provisionally named S/2005 P 1, and the fainter, inner small satellite, Nix, was provisionally named S/2005 P 2. Credit: NASA/STScI

Hubble Reveals Dust Disks Around Star

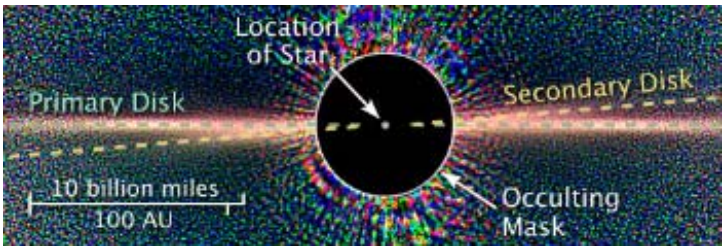
Space Telescope Science Institute News Release - June 28, 2006

Detailed images of the nearby star Beta Pictoris, taken by NASA's Hubble Space Telescope, confirm the existence of not one but two dust disks encircling the star. The images offer tantalizing new evidence for at least one Jupiter-size planet orbiting Beta Pictoris.

The finding ends a decade of speculation that an odd warp in the young star's debris disk may actually be another inclined disk. The recent Hubble Advanced Camera for Surveys view - the best visible-light image of Beta Pictoris - clearly shows a distinct secondary disk that is tilted by about 4 degrees from the main disk. The secondary disk is visible out to roughly 24 billion miles from the star, and probably extends even farther, said astronomers.

The finding, by a team of astronomers led by David Golimowski of Johns Hopkins University in Baltimore, Md., appears in the June 2006 issue of the Astronomical Journal. To see the faint disk, astronomers used the Advanced Camera for Surveys' coronagraph, which blocked the light from Beta Pictoris. The disk is fainter than the star because its dust only reflects light.

The best explanation for the observations is that a suspected unseen planet, about one to 20 times the mass of Jupiter and in an orbit within the secondary disk, is using gravity to sweep up material from the primary disk.



"The Hubble observation shows that it is not simply a warp but two concentrations of dust in two separate disks," Golimowski said. "The finding suggests that planetary systems could be forming in two different planes. We know this can happen because the planets in our solar system are typically inclined to Earth's orbit by several degrees. Perhaps stars forming more than one dust disk may be the norm in the formative years of a star system."

Dynamical computer models by David Mouillet and Jean-Charles Augereau of Grenoble Observatory in France suggest how a secondary dust disk can form. A planet in an inclined orbit gravitationally attracts small bodies of rock and/or ice, called planetesimals, from the main disk, and moves them into an orbit aligned with that of the planet. These perturbed planetesimals then collide with each other, producing the tilted dust disk seen in the new Hubble images.

Astronomers do not know how the planet, if it exists, settled into an inclined orbit. However, computer simulations by multiple research teams show that planet embryos which start out in a very thin plane, can, through gravitation interactions, rapidly scatter into orbits that become inclined to the primary disk. Whatever the process, the four degree inclination of the suspected perturbing planet in Beta Pictoris is not unlike the several degree spread seen in our solar system.

"The actual lifetime of a dust grain is relatively short, maybe a few hundred thousand years," Golimowski explained. "So the fact that we can still see these disks around a 10- to 20-million-year-old star means that the dust is being replenished by collisions between planetesimals."

Beta Pictoris is located 63 light-years away in the southern constellation Pictor. Although the star is much younger than the Sun, it is twice as massive and nine times more luminous. Beta Pictoris entered the limelight over 20 years ago when NASA's Infrared Astronomical Satellite detected excess infrared radiation from the star. Astronomers attributed this excess to the presence of warm circumstellar dust.

The dust disk was first imaged by ground-based telescopes in 1984. Those images showed that the disk is seen nearly edge-on from Earth. Hubble observations in 1995 revealed an apparent warp in the disk.

Subsequent images obtained in 2000 by Hubble's Space Telescope Imaging Spectrograph confirmed the warp. The latter study was led by Sara Heap of NASA's Goddard Space Flight Center in Greenbelt, Md. At that time, Heap and her colleagues suggested that the warp may be a secondary disk tilted about 4 degrees from the main disk. Several teams of astronomers attributed the warp to a planet in a tilted orbit out of the plane of the main disk.

Astronomers using ground-based telescopes also found various asymmetries in the star's disk. Infrared images taken in 2002 by the Keck II Observatory in Hawaii showed that another, smaller inner disk may exist around the star in a region the size of our solar system. Golimowski's team did not spot the disk because it is small and is blocked by the Advanced Camera's coronagraph. This possible inner disk is tilted in the opposite direction from the disk seen in the new Hubble images. This misalignment implies that the tilted disks are not directly related. Nevertheless, they both may bolster evidence for the existence of one or more planets orbiting the star.

The Hubble Space Telescope is an international cooperative project between NASA and the European Space Agency. The Space Telescope Science Institute is operated for NASA by the Association of Universities for Research in Astronomy, Inc., Washington.

Tracking Earth's Wobbles

American Geophysical Union News Release - June 26, 2006

New technologies are enabling scientists to determine precisely the extent and causes of Earth's short-term wobbling. Like a spinning top, Earth wobbles as it rotates on its axis. In fact, it displays many different wobbling motions, ranging in period from a few minutes to billions of years. Some of these are well studied, like the Chandler wobble of 433 days and the annual wobble, which together can tilt Earth's axis up to 10 meters [30 feet] from its nominal center.

Earth's irregular, shorter term wobbles, lasting a week or so, have been more difficult to study, partly because these motions are usually masked by those of more prominent wobbles. Now, scientists in Belgium and France have taken advantage of a quirk in the pattern of large-scale motions and the advent of the Global Positioning System (GPS) to pin down short-term wobbles that occurred from November 2005 through February 2006.

During this period, the Chandler wobble and the annual wobble essentially cancelled each other out, an event that occurs every 6.4 years, allowing the researchers to focus on the short-period wobbles. Over these three and a half months, the pole position traced small loops, ranging in size from that of a sheet of A4 [8-1/2x11 inch] paper down to that of a cell phone, and it remained within a one meter [yard] square during these four months.

Sebastien Lambert of the Royal Observatory of Belgium and colleagues there and at the Paris Observatory took advantage of the opportunity to track short-term wobbles, using newly available GPS data that establish the location of the poles precisely. They then sought to determine why these motions occurred when they did.

In a paper scheduled to be published 1 July in Geophysical Research Letters, they conclude that weather patterns in the northern hemisphere played a significant role. Both the location of high- or low-pressure

Continued on next page

centers--for example, over Asia or northern Europe--and the relationship of these weather systems to each other played a measurable role in creating, or "exciting," small, short-term wobbles, they report.

The ocean also affects short-term wobbles, according to Lambert and his colleagues. They were able to correlate oceanic and atmospheric pressure variations with the small observed wobbles during the study period. Although these forces had been credited by previous researchers with maintaining the large Chandler wobble, this was the first time that scientists have been able to demonstrate that day-to-day changes in atmospheric pressure produce a measurable effect on Earth's rotation.

The study was funded by the Belgian Science Policy Office, the Royal Observatory of Belgium, and the Paris Observatory.

Georgia Astronomy in State Parks (GASP) Events

Here are the remaining GASP events for 2006:

September 2nd (Labor Day Weekend) - FDR State Park

November 11th - Florence Marina 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 Circincione, Keith Burns, Harold and Claudia Champ with Ginger, Peter Macumber, Sharon Carruthers, Tom Faber, Kat Sarbell, and Holly and John Ritger.

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

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.

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

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

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Co-Chair: Joanne Cirincione starrynights@AtlantaAstronomy.org

Sidewalk Astronomy: position open

Woodruff Observ. Coordinator: John Lentini 770-984-0175 johnlentini@yahoo.com

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

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.

The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

FROM:
Kat Sarbell
2025 Peachtree Road, Apt.#408
Atlanta, GA 30309

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

Atlanta Astronomy Club
P.O. Box 76155
Atlanta, GA 30358-1155
www.atlantaastronomy.org

FIRST CLASS

Calendar by Tom Faber (All times EDT unless noted)

July 3rd, Monday: Moon First Quarter. Earth at Aphelion.
July 10th, Monday: Full Moon (Thunder or Hay Moon).
July 15th, Saturday: **CEC Meeting - see p. 2 for details.**
July 17th, Monday: Moon Last Quarter.
July 18th, Tuesday: Mercury Inferior Conjunction.
July 20th, Thursday: Moon Occults M45.
July 21st, Friday: **AAC Meeting at White Hall, 8PM, Emory University.** Mars near Regulus.
July 22nd, Saturday: **DSO at Brasstown Bald - see p. 2 for details.**
July 25th, Tuesday: New Moon.
July 27th, Thursday: Southern Delta Aquarid Meteors.
August 2nd, Wednesday: Moon First Quarter.
August 6th, Sunday: **AAC Board Meeting, 5PM.** Saturn Conjunction with Sun.
August 7th, Monday: Mercury Greatest Western Elongation.
August 8th, Tuesday: Mercury near Venus.
August 9th, Wednesday: Full Moon (Green Corn or Grain Moon).
August 10th, Thursday: Mercury near Venus. Neptune at Opposition.
August 12th, Saturday: Perseid Meteors.
August 15th, Tuesday: Moon Last Quarter.
August 18th, Friday: **AAC Meeting at White Hall, 8PM, Emory University.**
August 19th, Saturday: **DSO at location TBA - Contact Daniel Herron for details. CEC Meeting.**
August 21st, Monday: Mercury near Saturn.
August 22nd, Tuesday: Morning grouping of the Moon, Mercury, Venus, & Saturn.
August 23rd, Wednesday: New Moon.
August 26th, Sunday: Venus near Saturn.
August 31st, Thursday: Moon First Quarter.

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 Infomation

Please send articles, pictures, and drawings in electronic format on anything astronomy related to Kat Sarbell at focalpoint@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 27th at 4:00 PM .... Submissions will no longer be accepted after the deadline**.