

The Focal Point

The Atlanta Astronomy Club
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Editor: Tom Faber

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April General Meeting

by Keith Burns, AAC President

The next general membership meeting of the Atlanta Astronomy Club will be held on Friday, April 23. The meeting starts at 8PM in the Math and Science Building directly across Dowman Drive from our usual meeting place of Whitehall on the Emory University campus. The meeting will be in the planetarium located on the second floor just inside the double doors. Note this is thru the upper level access doors and not the lower level doors. The room is to the right after you enter into the building. Refreshments and snacks will be served starting around 7:30PM, but please remember that no food or drinks are allowed inside the planetarium. Directions are at the bottom of this article. The meeting starts out with the monthly announcements Power Point program that will run before the meeting starts and at the beginning of the meeting. After the meeting starts, we move on to our featured speaker of the night, Dr. Paul Schenk of the Lunar and Planetary Institute of Houston Texas. He will present a talk titled, "Galileo at 400."

The Program

When Galileo discovered the four large moons of Jupiter 400 years ago this summer, he knew their revolutionary importance, but he could not dream that they would spur another revolution in our thinking centuries later. Spacecraft exploration has revealed volcanoes and subterranean oceans on these planet-sized moons, leading to speculation that habitable worlds might be commonplace. We will explore what we have learned about these moons and where we might go from here.

Our Speaker

Here is a bit of information on our speaker tonight. Dr. Paul Schenk, currently a staff (not staph) scientist at the Lunar and Planetary Institute in Houston Texas, is also a deep sea diver, scuba diver, traveler, mapper, and occasional dabbler in amateur stained glass. Rejected from art school, he was lucky to discover the fascinating world of geology just as the

March was Membership Renewal Month

MEMBERSHIP RENEWALS: The AAC has moved to a "one-date-for-all" membership renewal. ALL CLUB MEMBERS, with some exceptions, should have submitted their \$30 (\$35 if you receive the mailed *Focal Point*) dues for 2010 by March 20th. (There will be an R1 in the upper right corner of your *Focal Point* label if you receive it in the mail. If you receive the *Focal Point* online you will receive an email - be sure we have your current email address). New members and those who have not yet paid their pro-rated dues, will receive a notice in their *Focal Point* stating the amount you owe to bring you in line with the March date. (There will be either an xxx or an RF on your label). If you have not yet renewed your membership, please send it to the AAC Treasurer Sharon Carruthers.

Voyager spacecraft to the outer planets were on their way to the Outer Solar System. He applied for and was awarded a NASA summer internship at JPL to witness first-hand the Voyager 2 encounter with Jupiter in 1979, including the first high-resolution images of Europa. He did not quite suspect that decades later he would be making high-resolution topographic maps and movies of the surface of this strange water world.

Paul has been mapping the icy satellites of the outer planets since graduate school days at Washington University in Saint Louis and is currently assisting the New Horizons team plan Pluto encounter observations for July 2015. He specializes in impact craters and their effects on icy satellites, and in 3-D imaging of their surfaces, which he uses to measure topography and create really amazing stereo views. His new book, an Atlas of the Galilean Satellites, highlighting the Voyager and Galileo missions to Jupiter, is due out this spring. He has received no major awards, for which he is grateful for not having to have given a long speech.

The business meeting will follow after questions and answers. If you have any information you want to announce, please notify president, Keith Burns. You can contact him at president@atlantaastronomy.com.

Directions to White Hall and Parking

For now, the best places to park are the Peavine Parking Deck and the Fishburne Parking Deck. Fishburne Parking Deck is located on Fishburne Drive. When driving on North Decatur Rd, turn onto Dowman Drive (Dowman is now a one-way road into the campus now from North Decatur Road. Exit either by Oxford Road or Fishburne Drive) and then right on Fishburne Drive. You can also access Fishburne Drive from Clifton Road southbound on right before the N. Decatur Rd intersection.

Continued on next page



Note the Fishburne Parking deck is actually accessible from Fishburne Lane. When driving on Fishburne Drive, watch for the parking lot signs. The parking deck is located behind the Rich Building.

The Peavine parking deck is accessible from North Decatur Road. Take N. Decatur Rd to Oxford Road. Oxford is accessible from N. Decatur Road at two spots. If you are traveling east on North Decatur, then turn left onto Oxford. If traveling west, turn right onto Oxford. Take Oxford Road to the back entrance of Emory and turn onto Eagle Row. Take that to the Peavine parking deck. Note Peavine is across the street from the running track. You can also access Peavine from Clifton Road. Take Clifton south from Briarcliff Road. Turn right onto Asbury Circle. Asbury Circle changes names to Eagle Row. Parking deck will be on right side of road. See the Emory web site for more details and directions: www.emory.edu

Upcoming AAC Meetings & Events:

The May meeting of the Atlanta Astronomy Club is schedule for May 21st. This date is very important in that our yearly elections are held at that meeting. So not only do we have a speaker but also we will vote in new and returning officers and board members. We are looking for members to run for the following offices: President, VP Programs, VP Observing, Treasurer, Recording Secretary, and Corresponding Secretary. Plus we are looking for two folks to run for the two opening board seats. Note the board seats are held for 2 years while our officer terms only last for one year. If you are interested in running for one of these seats, please contact Keith Burns or Don Hall. I can be reached at 678-229-7250 or president@atlantaastronomy.org.

Astronomy Day Event at Tellus

Here are a few upcoming events we have planned. Saturday April 24th is Astronomy Day. We have been invited to Tellus Museum just north of Cartersville off I-75 to help out with the event. It runs from 10AM to 5PM for solar viewing and answer questions about astronomy and the club. If you can come help out, please let me know. I can be reached at president@atlantaastronomy.org. Please let me know how many are in your party and the names of each person. The museum needs a list of members who are coming so you don't get charged the entrance fee. If you have a solar scope or filter, please bring it. If it rains we will set up in the great hall. If you can't make our Friday night meeting at Emory our speaker, Dr. Paul Schenk, will give his talk again at Tellus starting at 1PM. Location of talk TBA.

Joint AAC / Georgia Tech Meeting

We are in the process of working out a deal with Georgia Tech to hold one of our meetings there. The date will be announced as soon as we get verification. The possible dates are either May 21st or June 25th.

July Tellus Meeting

Our July meeting will take place on July 24th at Tellus Museum, as this will be AAC membership day. The date is a Saturday and the meeting will be held in the afternoon. The time and room location will be announced at a future date. This was a popular meeting last year, so we decided to try it again to encourage more folks to come. The plan is to head over to the I-Hop afterward for a bit of dinner.

Future Meeting Dates

Future meeting beyond these are scheduled for Aug 20th, Sept 17th, Oct 22nd, Nov 19th, and Dec 11th (Saturday).

Parking News Update

Starting June 1st the parking deck behind the admissions building will be open again. Plus they are opening a new Barnes and Noble and other shops on the top floor. So there will be a few things to do while waiting for the meeting to start. This new facility and parking area is located next to the Math and Science Building and directly behind the Admissions building.

March Meeting Minutes

by Julia Moore, Recording Secretary. Photos by Tom Faber

The March meeting of the Atlanta Astronomy Club convened at 8:00 PM on March 26, 2010 with President Keith Burns presiding. The program was first up with Rich Jakiel speaking about astro-imaging on budget using a DSLR camera (photo bottom) and Dan Llewellyn talked about astrophotography (mainly Planetary) using a webcams (photo below). Rich also made a few announcements concerning future programs:

Tom Bopp will be at Fernbank Museum on April 11.

The April 23 meeting will host Paul Shank, 400 years of Galileo, check for updates on location.

Lorraine Quinn is an interesting speaker for the Science Track at Dragon*Con.

Some random highlights from the Rich and Dan's talk:

We all received a handout entitled "Free Astronomy Programs to get Started in Astro Imaging." Michael Covington has a processing tutorial on his website. New Astronomy Press' website www.newastro.com is a helpful site. Components necessary for astrophotography are: Mount, Scope, Camera, Software. The program was very entertaining and informative.

Meeting notes:

DSO April 17, DAV

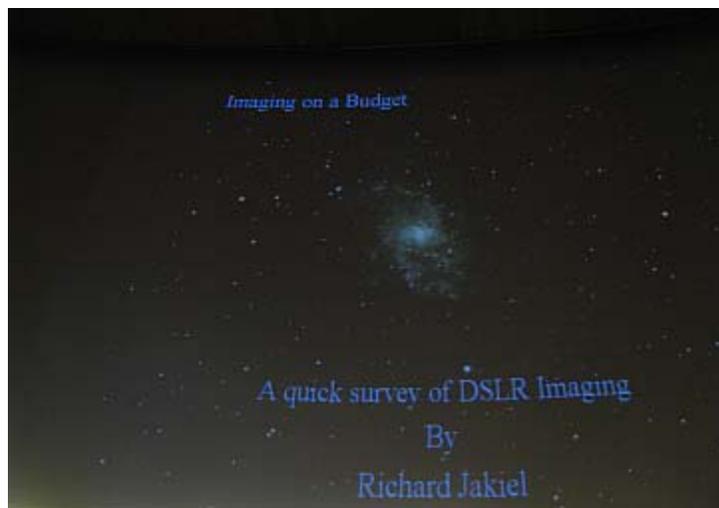
Elliot Meeting is April 17

Next Board Meeting: April 18, 4:00 PM at Emory

Elections news: Still have several slots open, see Keith or Don Hall to volunteer.

Astronomy Day is April 24th.

Check website for updates.



CE Chapter March Meeting Minutes

by Ken Poshedly, CE Recording Secretary

The meeting was held at the Charlie Elliott Wildlife Visitor Center on March 13 and called to order at 4:10 p.m. by CE Chapter Director Theo Ramakers. The final meeting attendance was 31 members and guests; due to poor weather conditions, no sky observing activities were held after the meeting. This being a pot-luck dinner / meeting, business was suspended after welcoming remarks by Theo until mealtime was completed.

Afterwards, seven members of the Chapter received Night Sky Network Star Awards for their outstanding contributions to the Chapter's outreach program during 2009. The seven topped the list of members who participated during the year in outreach programs in schools, at the Charlie Elliott Wildlife Center and elsewhere. The CE chapter reached out to over 1,100 children and adults and volunteered a total of over 280 hours. Those individuals receiving the award were: Marie Lott, Debbie Jones, Clevis Jones, Stephen Ramsden, Frank Garner, Theo Ramakers and (posthumously) Jonathan Wood. The outreach program does not only let individuals share in the views of the universe through the club's scopes, but actually teaches children about astronomy, including the stars and constellations, the size and relative distances in the solar system, craters, how telescopes are made, and how the universe evolves. Thanks to all members who participate in these important events.

It should be noted that our good friend and chapter Observing Director Jon Wood passed away in early January. A request is being submitted to the CE management to in some manner have the observing field at Charlie Elliott designated as the Jon Wood Observing Field in his memory. An e-mail of thanks from Janet Wood, Jons widow, was received by Theo during the meeting:

Dear members,

I would like to thank you all for the warm thoughts, visits, and prayers before and after Jonathan's passing. It is a huge comfort to know that he was loved and will be missed by so many. Also, a special thanks to the members who bought Jonathan's scopes and other odds and ends (though they may not have necessarily needed them). It was a big help in hard times and I know they are in good hands. Jonathan would have been grateful as I am now.

Again, thank you all!

Janet Wood

The featured speaker for the evening was Stephen Ramsden whose talk on the Sun covered everything from general information to the most minute details of its chemical composition, how it functions and everything else. Topics ranged from its size when compared with the member planets of the solar system to its size when compared with a number of other stars in our galaxy. Stephen also went into much detail about the Sun's inner workings, its atmosphere, its magnetic field, its sunspot cycle, and what its demise will be like and its effect on Earth. (Hint: No more Earth.) Finally, he covered various methods and types of solar observing, describing the kinds of solar filters and solar telescopes available, and distributed several items for attendees to keep, including special viewing glasses (with built-in solar viewing filters as lenses), a brochure and a CD of solar images.

Member Jim Sobelski followed with two PowerPoint presentations, the first on the construction a homemade Movable Tripod Dolly with caster wheels for easier transport of a tripod-mounted scope, and the second on Jim's own progress with his 20-inch, f/5 Dobsonian scope project.

Next was Atlanta Astronomy Club ALCor (Astronomical League Correspondent) Art Zorka, who provided an overview of the AL and its various observing programs; Art also announced presentation of the AL Lunar

Club Certificate to member Shaknar.

Theo's February and March Current Events in Astronomy & Space Exploration presentations can be viewed online at the CE web site. Steve Biegler's "Observing 101" segment featured the stars and other deep sky objects associated with the constellation of Orion and can be viewed online at the CE web site.

The next CE astronomy chapter meeting will be 5 p.m., Saturday, April 17, when we will hold mini astronomy workshops that focus on a number of items related to our hobby of amateur astronomy. Included will be a presentation on the Byers mount for the 16-inch scope, a workshop about imaging and astrophotography, carry cases for telescopes, etc. Future meeting dates are: May 15, Jun 12, Jul 10, Aug 7, Sept 11, Oct 2, Nov 6, Dec 4. The meeting was adjourned at approximately 7:15 p.m.

Public Outreach at Anna Ruby Falls

by Theo Ramakers, Charlie Elliott Chapter Director

On March 20th, the CE Chapter held the postponed outreach event at Anna Ruby Falls. Alan Bolton was the coordinator for this very successful event. We were told by the Park management that over 900 individuals came through. A battery of 11 solar scopes were available for the visitors to look at the sun. One Cal-K, and several H-alpha and white light scopes. In addition, we used some of the NSN tools to teach some of the visitors about the sun, our solar system and the universe. All children left with pictures of planets and/or posters of the sun and the Orion nebula. Congratulations to all that did participate: Alan and Sally Bolton, Stephen Ramsden, Marie and Tim Lott, Steve Bieger, Frank Garner, Art Zorka and Theo Ramakers. After the event several of the members participated also in the AAC's GASP event at neighboring Unicoi State Park.



Deerlick Astronomy Village Memorial Day Weekend Picnic and Open House

by Marie Lott

Mark your calendars! The annual Memorial Day Weekend Potluck Picnic will be held at Deerlick Astronomy Village on Sunday May 30 at 5 PM at the pavilion on Grier's Field. Everyone is invited. On Sunday afternoon there will also be an Open House so that guests may tour DAV. The Deerlick Group will provide the meat (burgers and brats) and provide volunteers to perform the cooking duties. Please RSVP to picnic@deerlickgroup.com by May 27th with what side dish or dessert you'd like to bring to the picnic and how many will be attending.

Camping will be FREE on Sunday night May 30th for Deerlick visitors who would like to camp overnight on the field after the picnic. Friday & Saturday camping will just be \$5 per guest per night. DAV field membership is not required for those attending this event. This year Memorial Day weekend will be just after a full moon, so although the skies might be bright, the moon will be beautiful :-). The Atlanta Astronomy Club has a nice clubhouse and telescope on the field - if you've not been out to the site, this is a great time to come check out the setup! Bring some friends out for a great picnic supper and see what Deerlick Astronomy Village is all about.

A good map to Deerlick Astronomy Village may be found at <http://www.deerlickgroup.com/PDF/DeerlickMap1.pdf>. More details about the picnic and open house will be posted on the DAV web site in May.

The Astronomical League

As a member of the **Atlanta Astronomy Club** you are automatically also a member of the **Astronomical League**, a nation wide affiliation of astronomy clubs. Membership in the AL provides a number of benefits for you. They include:

- * You will receive *The Reflector*, the AL's quarterly newsletter.
- * You can use the Book Service, through which you can buy astronomy-related books at a 10% discount.
- * You can participate in the Astronomical League's Observing Clubs. The Observing Clubs offer encouragement and certificates of accomplishment for demonstrating observing skills with a variety of instruments and objects. These include the Messier Club, Binocular Messier Club, the Herschel 400 Club, the Deep Sky Binocular Club, and many others.

To learn more about the Astronomical League and its benefits for you, visit <http://www.astroleague.org> You may also contact the AAC's Astronomical League Correspondent Art Zorka for more information about the AL's Observing Clubs. Contact Art at artzorka@yahoo.com or by phone at 404-633-8822.

Bradley Observatory Open House Series 2009-2010

The Galileo Project: Revealing Hidden Worlds

During the 2009-2010 academic year, the 400th anniversary of Galileo's first astronomical use of his telescope, Agnes Scott College is hosting "Project Galileo: Revealing Hidden Worlds". On **Friday May 7**, Jeffrey Young, Georgia State University Honors Program will speak on: "Galileo and the Birth of the Modern" For more info see: <http://www.agnesscott.edu/academics/bradleyobservatory/open-house-series.aspx> This is the final open house of the 2009-2010 academic year. The program begins at 8PM and will be followed by a planetarium show and observing with the Beck telescope (weather permitting).

The Next AAC Board Meeting

The next board meeting of the Atlanta Astronomy Club is scheduled for Sunday, April 18th from 4PM to 6PM at Emory University in the Math and Science building room N301. Contact Keith Burns or Board Chair Don Hall for more information about the meeting agenda.

Astro League Encourages Your Participation in Global Astronomy Month

by Art Zorka, AAC ALCOR

The International Year Of Astronomy is past. However, during 2009, more people got to look at the night sky through a binocular or telescope than ever before. The cornerstone program, 100 Hours of Astronomy brought more than 1,000,000, worldwide, people to the eyepiece. Now, sidewalk astronomers everywhere are ready for another event.

Astronomer Without Borders has developed global programs in which professional and amateur astronomers and educators can take part. Global Astronomy Month runs from April 1 through April 30, and the Astronomical League encourages us all to participate. There will be interactive web based programs with guest astronomers. A special online observing event, on April 7, will allow the public to observe as a planet outside our solar system passes in front of its star.

April 11th will be SunDay. Bring out you solar-filtered scope for the public to see the only star we can see during the day. This is a global event.

On April 12-16 Saturn will take center stage. Join Sidewalk Astronomers all over the world as we bring the most breathtaking object in the sky to the eyes and minds of the public.

Lunar Week is April 17th through the 23. Seven nights dedicated to observing the closest celestial body to Earth and our companion in our yearly journey around the Sun.

Lyrids Watch is April 21st and 22nd. Meteor showers are one of the heavens most spectacular events. Records of this meteor shower goes back almost three thousand years.

Global Astronomy Month comes to a peak on Saturday, April 24th (Astronomy Day) with the ultimate astronomy event. The Global Star Party is the time to come out under the stars, bring your telescope and encourage others to build a bridge to others around the world under the theme, "One People, One Sky". Begun during 100 Hours Of Astronomy, the Global Star Party is an ongoing annual AWB (Astronomy Without Borders) event.

Bringing astronomy to the public is exciting, but knowing that we are part of a global movement is monumental. For more information see: www.astronomerswithoutborders.org

New Light Pollution Web Site

"Light pollution - the artificial sky glow that dims the stars - now affects 63 percent of the world's population and 99 percent of people living in the European Union and continental United States, according to some estimates. The Milky Way is not visible in most cities, much less a meteor shower, Orion's shield, or, in the biggest cities, the North Star." The AAC's former light trespass officer Marc Sandberg has started a new web site with information how to reduce light pollution. The site is: www.sustainableoutdoorlighting.com. There is also a link to this web site on the AAC's web site under light pollution.

M109 Image by Chuck Painter

Below is a photo of AAC member Chuck Painter's new AstroTech 8" Ritchey-Chretien and an Orion Starshoot Pro Color CCD. Chuck made the bottom image of M109 with this equipment from his driveway in (light polluted) Alpharetta in mid-March. Total exposure time was 3 hours.



Jupiter and are too small to sustain nuclear fusion to shine as stars do.

The mystery object orbits the nearby brown dwarf at a separation of approximately 2.25 billion miles (3.6 billion kilometers — which is between the distances of Saturn and Uranus from the Sun). The team's research is being published in an upcoming issue of *The Astrophysical Journal*.

There has been a lot of discussion in the context of the Pluto debate over how small an object can be and still be called a planet. This new observation addresses the question at the other end of the size spectrum: How small can an object be and still be a brown dwarf rather than a planet? This new companion is within the range of masses observed for planets around stars — less than 15 Jupiter masses. But should it be called a planet? The answer is strongly connected to the mechanism by which the companion most likely formed.

There are three possible formation scenarios: Dust in a circumstellar disk slowly agglomerates to form a rocky planet 10 times larger than Earth, which then accumulates a large gaseous envelope; a lump of gas in the disk quickly collapses to form an object the size of a gas giant planet; or, rather than forming in a disk, a companion forms directly from the collapse of the vast cloud of gas and dust in the same manner as a star (or brown dwarf).



This is an artist's conception of the binary system 2M J044144 showing the primary brown dwarf that is estimated to be approximately 20 times the mass of Jupiter (at left) and its companion that is estimated to be 7 times the mass of Jupiter (at right). The disk of the primary likely never had enough material to make a companion of this mass. As a result, this small companion probably formed like a binary star. In this illustration, both objects are presented at the same distance to show relative sizes. Not shown are two other nearby objects, a low-mass star and a brown dwarf that are probably both parts of this system. Science Credit: NASA, ESA, and K. Todorov and K. Luman (Penn State University), Artwork Credit: Gemini Observatory, courtesy of L. Cook.

Small Companion to Brown Dwarf Challenges Simple Definition

STScI News Release - April 6, 2010

As our telescopes grow more powerful, astronomers are uncovering objects that defy conventional wisdom. The latest example is the discovery of a planet-like object circling a brown dwarf. It's the right size for a planet, estimated to be 5-10 times the mass of Jupiter. But the object formed in less than 1 million years - the approximate age of the brown dwarf - and much faster than the predicted time it takes to build planets according to some theories.

Kamen Todorov of Penn State University and co-investigators used the keen eyesight of the Hubble Space Telescope and the Gemini Observatory to directly image the companion of the brown dwarf, which was uncovered in a survey of 32 young brown dwarfs in the Taurus star-forming region. Brown dwarfs are objects that typically are tens of times the mass of

If the last scenario is correct, then this discovery demonstrates that planetary-mass bodies can be made through the same mechanism that builds stars. This is the likely solution because the companion is too young to have formed by the first scenario, which is very slow. The second mechanism occurs rapidly, but the disk around the central brown dwarf probably did not contain enough material to make an object with a mass of 5-10 Jupiter masses.

“The most interesting implication of this result is that it shows that the process that makes binary stars extends all the way down to planetary masses. So it appears that nature is able to make planetary-mass companions through two very different mechanisms,” says team member Kevin Luhman of the Center for Exoplanets and Habitable Worlds at Penn State University. If the mystery companion formed through cloud collapse and fragmentation, as stellar binary systems do, then it is not a planet by definition because planets build up inside disks.

Continued on next page

The mass of the companion is estimated by comparing its brightness to the luminosities predicted by theoretical evolutionary models for objects at various masses for an age of 1 million years.

Further supporting evidence comes from the presence of a very nearby binary system that contains a small red star and a brown dwarf. Luhman thinks that all four objects may have formed in the same cloud collapse, making this in actuality a quadruple system. "The configuration closely resembles quadruple star systems, suggesting that all of its components formed like stars," says Luhman.

Hubble Maps of Pluto Show Changes

STScI News Release - February 4, 2010

NASA today released the most detailed set of images ever taken of the distant dwarf planet Pluto. The images taken by NASA's Hubble Space Telescope show an icy and dark molasses-colored, mottled world that is undergoing seasonal changes in its surface color and brightness. Pluto has become significantly redder, while its illuminated northern hemisphere is getting brighter. These changes are most likely consequences of surface ices sublimating on the sunlit pole and then refreezing on the other pole as the dwarf planet heads into the next phase of its 248-year-long seasonal cycle. The dramatic change in color apparently took place in a two-year period, from 2000 to 2002.

The Hubble images will remain our sharpest view of Pluto until NASA's New Horizons probe is within six months of its Pluto flyby. The Hubble pictures are proving invaluable for picking out the planet's most interesting-looking hemisphere for the New Horizons spacecraft to swoop over when it flies by Pluto in 2015.

Though Pluto is arguably one of the public's favorite planetary objects, it is also the hardest of which to get a detailed portrait because the world is small and very far away. Hubble resolves surface variations a few hundred miles across, which are too coarse for understanding surface geology. But in terms of surface color and brightness Hubble reveals a complex-looking and variegated world with white, dark-orange, and charcoal-black terrain. The overall color is believed to be a result of ultraviolet radiation from the distant Sun breaking up methane that is present on Pluto's surface, leaving behind a dark and red carbon-rich residue.

When Hubble pictures taken in 1994 are compared with a new set of images taken in 2002 to 2003, astronomers see evidence that the northern polar region has gotten brighter, while the southern hemisphere has gotten darker. These changes hint at very complex processes affecting the visible surface, and the new data will be used in continued research.

The images are allowing planetary astronomers to better interpret more than three decades of Pluto observations from other telescopes, says principal investigator Marc Buie of the Southwest Research Institute in Boulder, Colo. "The Hubble observations are the key to tying together these other diverse constraints on Pluto and showing how it all makes sense by providing a context based on weather and seasonal changes, which opens other new lines of investigation."

The Hubble pictures underscore that Pluto is not simply a ball of ice and rock but a dynamic world that undergoes dramatic atmospheric changes. These are driven by seasonal changes that are as much propelled by the planet's 248-year elliptical orbit as its axial tilt, unlike Earth where the tilt alone drives seasons. The seasons are very asymmetric because of Pluto's elliptical orbit. Spring transitions to polar summer quickly in the northern hemisphere because Pluto is moving faster along its orbit when it is closer to the Sun.

Ground-based observations, taken in 1988 and 2002, show that the mass of the atmosphere doubled over that time. This may be due to warming and sublimating nitrogen ice. The new Hubble images from 2002 to 2003 are giving astronomers essential clues about how the seasons on Pluto work and about the fate of its atmosphere.

The images, taken by the Advanced Camera for Surveys, are invaluable to planning the details of the New Horizons flyby in 2015. New Horizons will pass by Pluto so quickly that only one hemisphere will be photographed in the highest possible detail. Particularly noticeable in the Hubble image is a bright spot that has been independently noted to be unusually rich in carbon monoxide frost. It is a prime target for New Horizons. "Everybody is puzzled by this feature," says Buie. New Horizons will get an excellent look at the boundary between this bright feature and a nearby region covered in pitch-black surface material.

"The Hubble images will also help New Horizons scientists better calculate the exposure time for each Pluto snapshot, which is important for taking the most detailed pictures possible," says Buie. With no chance for re-exposures, accurate models for the surface of Pluto are essential in preventing pictures that are either under- or overexposed.

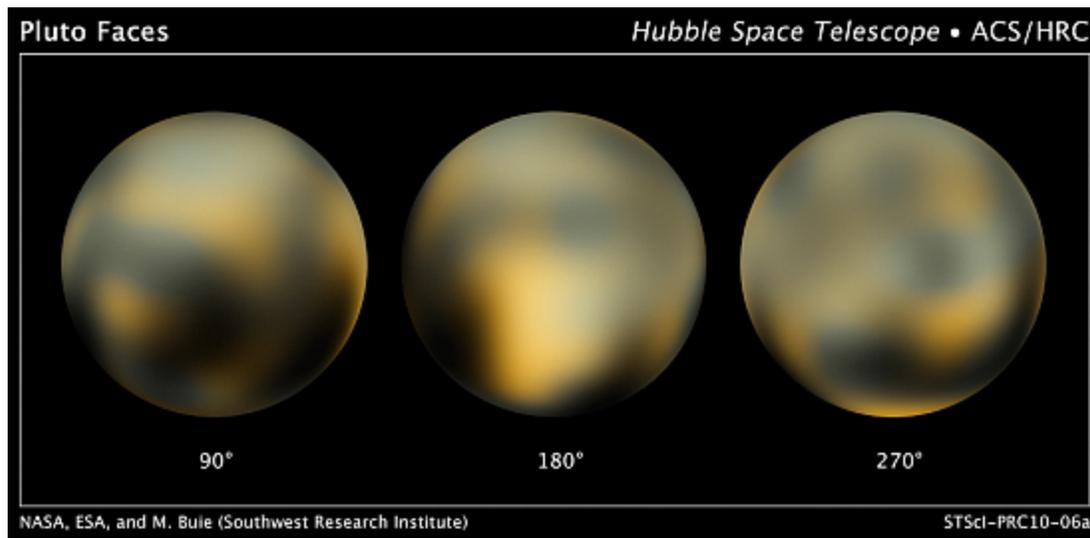
Article continued on next page

Images Below: This is the most detailed view to date of the entire surface of the dwarf planet Pluto, as constructed from multiple NASA Hubble Space Telescope photographs taken from 2002 to 2003.

Hubble's view isn't sharp enough to see craters or mountains, if they exist on the surface, but Hubble reveals a complex-looking and variegated world with white, dark-orange, and charcoal-black terrain. The overall color is believed to be a result of ultraviolet radiation from the distant Sun breaking up methane that is present on Pluto's surface, leaving behind a dark, molasses-colored, carbon-rich residue.

The center disk has a mysterious bright spot that is unusually rich in carbon monoxide frost. This region will be photographed in the highest possible detail when NASA's New Horizons probe flies by Pluto in 2015.

The Hubble images are a few pixels wide. But through a technique called dithering, multiple, slightly offset pictures can be combined through computer-image processing to synthesize a higher-resolution view than could be seen in a single exposure. This series of pictures took four years and 20 computers operating continuously and simultaneously to accomplish. Credit: NASA, ESA, and M. Buie (Southwest Research Institute)



The Hubble images are a few pixels wide. But through a technique called dithering, multiple, slightly offset pictures can be combined through computer-image processing to synthesize a higher-resolution view than could be seen in a single exposure. "This has taken four years and 20 computers operating continuously and simultaneously to accomplish," says Buie, who developed special algorithms to sharpen the Hubble data.

The Hubble research results appear in the March 2010 issue of the *Astronomical Journal*. Buie's science team members are William Grundy of Lowell Observatory in Flagstaff, Ariz., and Eliot Young, Leslie Young, and Alan Stern of Southwest Research Institute in Boulder, Colo.

Buie plans to use Hubble's new Wide Field Camera 3 to make further Pluto observations prior to the arrival of New Horizons.

Georgia Astronomy in State Parks

The following GASP events are currently scheduled:

June 5 - Tugaloo St. Park.

Aug 14 - Special Event:
Moon Lake Community
Library in Mentone,
Alabama.

Nov 13 - Red Top Mtn SP.

For more information about these events, contact Keith Burns at 770-427-1475 or Keith_B@bellsouth.net.



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.

Atlanta Astronomy Club Online

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

The **Atlanta Astronomy Club, Inc.**, the South's largest and oldest astronomical society, meets at **8:00 P.M.** on the Friday closest to full moon of each month at Emory University's White Hall or occasionally at other locations or times. Membership fees are **\$30 (\$35)** for a family or single person membership. College Students membership fee is **\$15 (\$20)**. These fees are for a one year membership (\$5 per year extra charge to receive the *Focal Point* mailed).

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

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Observing Chair: Daniel Herron observing@atlantaastronomy.org

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Recording Secretary: Julia Moore Secretary@atlantaastronomy.org

Board Chair: Don Hall - donrhall@bellsouth.net

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Georgia Astronomy in State Parks: Keith Burns 770-427-1475
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Light Trespass: Open - Contact Keith Burns if you would like to volunteer.

PSSG Chairman: Peter Macumber pmacumber@nightsky.org

PSSG Co-Chair: Joanne Cirincione
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Sidewalk Astronomy: Brad Isley
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Woodruff Observ. Coordinator: Sharon Carruthers
Treasurer@AtlantaAstronomy.org

Webmaster Atlanta Astronomy: Daniel Herron
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Directions to White Hall at Emory

Our meetings are generally held in White Hall. To get to White Hall, turn onto Dowman Drive from North Decatur Rd at the five way intersection (across from Everybody's Pizza). White Hall is located across from the new Science & Math building. The best places to park are the Peavine and the Fishburne Parking Decks. The Fishburne deck is located on Fishburne Drive which is accessible from N. Decatur Rd. Turn onto Dowman and then right on Fishburne. You can also access Fishburne Drive from Clifton Road just north of N. Decatur. The Peavine parking deck is accessible from N. Decatur Rd. Turn onto Oxford Rd, go to the back entrance of Emory and turn onto Eagle Row. Take that to the Peavine deck. You can also access the Peavine deck from Clifton Rd. Turn onto Asbury Circle. It's the intersection next to the railroad tracks on Clifton. For maps to the decks see <http://map.emory.edu>. For more detailed directions to Emory University, visit www.atlantaastronomy.org or go to the Emory web site.

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

AAC Events are listed in BOLD

- April 14th, Wednesday: New Moon.
- April 17th, Saturday: **DSO at DAV, Charlie Elliott Chapter Meeting at 4PM.**
- April 18th, Sunday: **AAC BoD Meeting at Emory University, 4PM.**
- April 21st, Wednesday: Moon First Quarter.
- April 22nd, Thursday: Lyrids Meteor Shower.
- April 23rd, Friday: **AAC Meeting at White Hall, 8PM, Emory University.**
- April 24th, Saturday: Astronomy Day at Tellus Museum.
- April 28th, Wednesday: Full Moon. Mercury Inferior Conjunction.
- April 30th, Friday: **May Focal Point Deadline.**
- May 5th, Wednesday: Eta Aquarids Meteor Shower.
- May 6th, Thursday: Moon Last Quarter.
- May 7th, Friday: Open House at Bradley Observatory, 8PM - see pg 4 for details.
- May 13th, Thursday: New Moon.
- May 15th, Saturday: **DSO at DAV, Charlie Elliott Chapter Meeting at 4PM.**
- May 20th, Thursday: Moon First Quarter.
- May 21st, Friday: **AAC Meeting at White Hall, 8PM, Emory University.**
- May 26th, Wednesday: Mercury Greatest Elongation West.
- May 27th, Thursday: Full Moon.
- May 30th, Sunday: Memorial Day Weekend Potluck Picnic at DAV - see pg 4.
- June 4th, Friday: Moon Last Quarter.
- June 5th, Saturday: **GASP at Tugaloo State Park - see pg 7.**
- June 12th, Saturday: **Charlie Elliott Chapter Meeting, New Moon.**
- June 14th, Monday: Earliest Sunrise in Atlanta (~6:25AM)
- June 19th, Saturday: Moon First Quarter.
- June 21st, Monday: Solstice at 7:28AM.

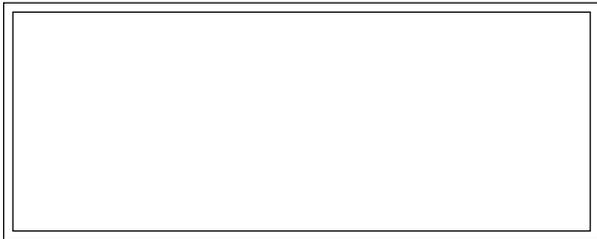
Atlanta Astronomy Club Listserv

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

Focal Point Deadline and Submission Information

Please send articles, pictures, and drawings in electronic format on anything astronomy, space, or sky related to Tom Faber at focalpoint@atlantaastronomy.org. Please send images separate from articles, not embedded in them. Articles are preferred as plain text files but Word documents or PDFs are okay. You can submit articles anytime up to the deadline. **The deadline for May is Friday, April 30th at 6:00 PM. Submissions will not be accepted after the deadline.**

FIRST CLASS



The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

FROM:

Tom Faber

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Alpharetta, GA 30022

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

Atlanta Astronomy Club

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