

# The Focal Point

The Atlanta Astronomy Club  
Established 1947  
January 2011

Vol. 23 No. 8

Editor: Tom Faber

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## January General Meeting

Join us for the January meeting of the Atlanta Astronomy Club. The meeting takes place on Friday January 21st at 8PM. The location is in room 207 of White Hall on the Emory University Campus. The meeting will run for about 2 hours. If you have any announcements you want to make during the meeting, please contact our President Mark Banks, so that he can schedule the time for you during the meeting. His contact information is on page 7.

### The Program:

The speaker for the January meeting is Dr. Chris De Pree, Professor of Astronomy at Agnes Scott College. Professor De Pree will present a talk titled "Astronomical Technology since the Telescope (1610-2010)." Synopsis: Our ability to observe and understand of the universe has progressed side-by-side with advances in technology. Since the major breakthrough of the invention of the telescope in 1610, new technologies have continued to make their mark. In his talk, Chris will describe some milestones in technological innovation in the past 400 years, and the impact that they have had on our astronomical understanding. Professor De Pree will describe the impact of some of these advances including: photography, spectroscopy, rocketry, and radar.

### Speaker Bio:

Professor De Pree has a B.S. from Duke University, and a M.S. and a Ph.D. from the University of North Carolina.

Teaching and Scholarly Interests: Professor De Pree's teaching interests include introductory astronomy and physics, scientific computing, galactic astrophysics. His research focuses on early stages of massive star formation in



## "Thank You" from the Burns Family

*Editor's note: Mr and Mrs Burns sent this letter to me and asked that I pass it along to the membership of the Atlanta Astronomy Club.*

To Atlanta Astronomy Club,

We want to express our gratitude to the club for all the help they gave us trying to locate our son Keith Burns.

Although the outcome was not what we hoped for we still appreciate all your help. We also want to thank everyone for all the kind words about Keith that were expressed to us in e-mails, on Facebook, in person, and at the Memorial Service.

We were overwhelmed by the number of people who called Keith their friend. We would like to thank the people who supplied food for the service also.

We will never forget the support that you gave us.

Sincerely,

The Burns Family

the Milky Way, HII regions, astrophysical jets and outflows.

Professional Activities: Professor De Pree is the co-author of *The Complete Idiot's Guide to Astronomy* (Alpha Books), now in its fourth edition. In a KCBS interview on iTunes U, Professor De Pree discusses the contributions made by amateur astronomers. Professor De Pree is profiled on the National Radio Astronomy Observatory Web site, recalling his memories of its summer student program and encouraging Agnes Scott students to participate in this research experience. The New York Times Science Blog introduced the Metro-Atlanta Scale Model Solar System (MASS) project, in which Bradley Observatory plays a key role, and included a quiz created by observatory director Chris De Pree.

The Bradley Observatory web site is: <http://www.agnesscott.edu/academics/bradleyobservatory>

### Upcoming AAC Meetings:

February 18th, March 18th, April 15th, May 20th, and June 17th - Lecture topics TBA.

### Parking News Update at Emory University

The parking deck behind the admissions building is now open. There is a Barnes and Noble and other shops on the top floor of the parking deck, so there will be some 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.

## December Meeting and Potluck Dinner

The AAC held its annual Christmas potluck dinner and meeting on Saturday evening, December 11th at the Emory University Math and Science Building. The dinner was held in the atrium with the club providing the meat dishes (turkey and ham prepared by Peter Macumber) and the attendees bringing lots of yummy snacks, side dishes, and desserts. During the dinner and before the beginning of the talk there was a very moving slide show with photos of Keith Burns involved in a number of club and other activities over the last few years. The slide show was assembled by Richard Jakiel with photos provided by himself, Tom Faber, Joanne Cirincione, Daniel Herron, Allison Smith, and Pixie Bruner.

After the dinner we moved to the planetarium to hear a very interesting talk by Jim Summers about “Galileo”. Jim actually dressed the part wearing a period costume.

Special thanks to Sharon Carruthers for organizing the dinner and to our host Alex Langoussis of the Department of Physics, and to Emory University for providing the building for the event. Here are some photos of the evening’s happenings. Photos by Tom Faber.



*Jim and Julie Moore with Sharon Carruthers.*



*Socializing before the dinner.*



*The dinner winding down.*



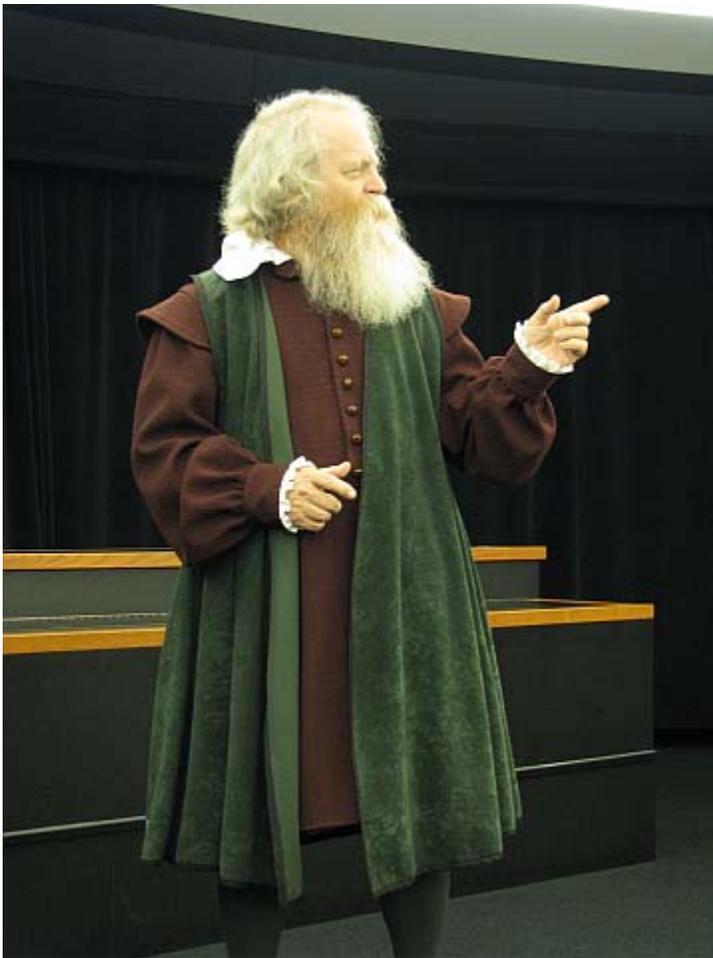
*Lining up for dinner!*



*Watching the slide show of photos of Keith before Jim begins his talk.*



Watching the slide show of photos of Keith before Jim begins his talk.



Jim Summers as "Galileo."

## From the President's Desk

It's that time of year again when cold dense air provides us with excellent seeing conditions. But, along with these conditions comes the challenges of cold weather observing. As I learned many years ago in Air Force Survival class, the cold can do a lot of damage if you are not prepared to deal with it. Frost bite can sneak up on you before you realize it.

The first thing you have to consider is dressing for the occasion. A heavy coat, sweater, long johns, insulated boots and gloves are all necessary. Also, you must dress in layers to adjust for temperature changes during the night. If you need to watch your budget, you can get most of these items at a thrift store. One of my favorite items is a pair of ski pants I got for only \$5 at a thrift store a few years back.

Your telescope and equipment must be kept within its "Operating temperature range". This can be a real challenge sometimes. One of my favorite items for this is the hand warmers that you can buy at any sporting goods store. I have found that if I tape a couple of them to the back of my scope's primary mirror it will stay dew and frost free all night. It also helps to put one in your eyepiece case to keep them warm. Then there is the 12 Volt "hair dryer" that has too many uses to mention here.

No observing session would be complete without a warm snack and a hot cup of coffee. Just put your snacks in the same pocket with a hand warmer to keep them warm. And, since a cup of coffee gets cold very quickly, get a thermos with a drinking spout instead of pouring a cup.

If you have any other cold weather observing tips please share them!

Mark Banks, President, AAC

## AAC Dues for Mailed Focal Points

At a Board of Directors meeting earlier this year it was decided to increase membership dues for those members desiring to receive a printed *Focal Point* by mail by \$7 per year to \$12 per year above the regular membership dues starting in 2011. Dues for members downloading the *Focal Point* from the club's web site will remain the same as before at \$30 per year. Dues for new and renewing memberships who desire to receive a printed *Focal Point* by mail will be \$42 per year starting January 1. This increase was approved to cover the costs of printing and mailing a *Focal Point* which is approximately \$12 per year. If you wish to switch from the mailed *Focal Point* to downloading the PDF version (and save \$12) notify Sharon Carruthers at [Treasurer@AtlantaAstronomy.org](mailto:Treasurer@AtlantaAstronomy.org). Also please notify Sharon with any changes to your contact information.

## Bradley Observatory Open Houses

### 2010-2011 Open House Lecture Series

#### Astronomy Since Galileo (1610 – 2010)

The 400 years since the first astronomical use of the telescope have brought enormous progress to the science of astronomy. Technologies and new areas of science have been brought to bear on outstanding astronomical questions. The development of photography, spectroscopy, quantum mechanics, to name just a few have had profound impacts on our understanding of the universe. This year's lectures will explore the development of astronomy since Galileo. Lectures/Concerts begin at 8 PM. There will be observing with the Beck Telescope afterwards weather permitting.

February 11, 2011 - "Sugar and spice and everything nice - is that what space is made of?", Susanna Widicus Weaver (Emory University)

March 25, 2011 - Spring Equinox Concert and Open House

April 15, 2011 - "Jupiter's Galilean Satellites", Melissa McGrath (NASA Marshall Space Flight Center)

May 13, 2011 - "An Evening at the Edge of the Universe", James Webb (Florida International University)

## December CE Chapter Minutes

by Marie Lott, CE Recording Secretary

The quarterly potluck dinner meeting of the Charlie Elliott Chapter of the Atlanta Astronomy Club was held at 3 PM on Saturday, December 4, 2010 at the CE Wildlife Visitor Center. Twenty five members were present. After socializing and dining, the meeting was officially brought to order at 4:20 PM.

Chapter Director Theo Ramakers began with a moment of silence to honor the memory of Keith Burns. Many members present at the meeting had also attended the morning's memorial service for Keith in Cartersville. Theo announced that the chapter logged 57 outreach events in 2010. He urged everyone to update their volunteer hours online before January 3, 2011 in order to earn a Night Sky Network pin. Theo also announced that the space shuttle launch scheduled for 2/3/11 at 8 PM should be visible from the Charlie Elliott observing field. Chapter members are invited to come out for that event. Ken Poshedly donated discarded Styrofoam boxes & soft foam liners from his work to anyone who could use them. He said he has access to more if others would like some.

Rich Jakiel and Pixie Bruner co-presented the evening's program, "AINT" Ancient INovation and Technology. Members were treated to information about the technical prowess of Mediterranean civilizations prior to 415 AD. Beginning with Eratosthenes in 240 BCE, we were enlightened about such advancements as the Roman concrete revolution and its importance to ancient architecture; aqueduct and bridge systems; mass production of glass; Roman coins; rotten fish sauce (garam); Archimedes Death Ray (recently tested on Myth Busters); the Claw of Archimedes and its defense of the city walls of Syracuse; the onager siege engine and the polybolos repeating crossbow; ancient analog computers, armillary spheres, astrolabes and the antikythera; and finally the impact of the ancient geniuses Archimedes, Heron of Alexandria, Ptolemy, Hipparchus and Hypatia. As you can see, if you missed the talk, you missed a lot of fascinating information!

Steven Philips, Observing Supervisor, wound up the meeting with "Observing 101", a highlight of current sun, moon and planet rise & set times, observing targets and challenges. Jupiter is now setting after midnight; Saturn rises at around 3 AM and Venus rises before dawn. Between Dec 20th and Jan 1st there will be a nice grouping of the crescent moon near Venus at dawn. During the first two weeks of January 2011 the asteroid 17 Fides passes though the Pleiades. The Quadrantid meteor shower peaks Jan 3rd-4th.

Beginner/Small Telescope/Binocular Target List for December: M31 (Andromeda Galaxy), M33 (Pinwheel Galaxy), NGC 253 (Sculptor Galaxy); Globular Clusters M2, M15; Open Clusters M34, M39, M45 (the Pleiades) and the Perseus Double Cluster (NGC 869/884); Supernova remnant M1 (the Crab Nebula); and M27 (Dumbbell Nebula).

Intermediate/Advanced Target List for December: Spiral Galaxies M74 & M77, NGC 891; Globular cluster NGC 288; Open Clusters NGC 129, 457 (the ET/Owl Cluster), 663, 1027; M76 (the Little Dumbbell); NGC 246 (Pac Man Nebula).

The meeting was adjourned at 6 PM followed. Due to rainy weather, no observing session was held.

The next meeting of the Charlie Elliott chapter will be January 8, 2011 at 3 PM. The featured speaker will be Anita Westlake, president and co-founder of the Meteorite Association of Georgia and frequent contributor to Meteorite Magazine. She will bring meteorite samples as well as a few pieces that will be available for purchase.

## Abbey's Eyeball Test

By Lenny Abbey

About 40 years ago I discovered a little test for telescope mirrors which is easy to perform and requires no equipment.

This test is much like the familiar Foucault test which is used by every amateur telescope maker. However, here the idea is to use a star for our light source and the iris of the eye for the knife edge.

First pick a moderately bright star which you can comfortably observe through the telescope without having to assume an awkward position. Very bright stars such as Sirius are not suitable because of the great amount of atmospheric turbulence that they seem to always be able to find. Remove the eyepiece and if you wear glasses, take them off. Rack the focusing tube in as far as possible and look through it, resting your eyebrow against the end of the tube.

If the telescope is aligned properly, and if you are very lucky, you will see the mirror or objective fully illuminated by the star. If this not the case, you will have to move the telescope tube around a little to find it. Once the mirror is fully illuminated, move the telescope tube, along with your eye (which should remain immobile against the focusing tube) towards your right. You should see the black edge of your imaginary "knife" moving across the mirror from the left, as in any Foucault test. Now rack the focuser out a little and try again. If your "knife edge" moves in from the right, you have moved outside the focus, and must back up a little.

When you finally locate the exact focus, and it does take quite a bit of work, you will see the mirror darken all-over at once, and just before the light completely disappears, every detail of the mirror's figure will stand out in amazing relief.

There are two words of caution that you must bear in mind. First, since the light rays are parallel instead of diverging, the apparent figure of a perfect mirror will be absolutely flat. And last of all, be careful of your footing. You do not want to undergo enucleation. Eucleation is the removal of the eyeball by surgical means (or otherwise)!

## After Christmas Telescope Help Session

By Daniel Herron, AAC Observing Chair.

It's that time of year again! We all got new astronomy toys and scopes and have no clue how to use them or would like help getting that extra info on how to best use our new toys. The club is here to help! On January 29th at 3pm at our Villa Rica observatory ( Directions: <http://bit.ly/9h12LV> ) we will be having our annual after Christmas telescope help session. Club members will be on hand to help you figure out how to setup and use that new telescope or accessory, answer any astronomy questions you may have, or just point to interesting things to look at in the sky! This is a rain or shine event. If you would like to volunteer to help out please contact me at [observing@atlantaastronomy.org](mailto:observing@atlantaastronomy.org)

## March is Membership Renewal Month

MEMBERSHIP RENEWALS: The AAC has moved to a "one-date-for-all" membership renewal. ALL CLUB MEMBERS, with some exceptions, should submit their \$30 (\$42 if you wish to receive the *Focal Point* by mail) dues for 2011 by March 20th - The Vernal Equinox. (There will be an R1 in the upper right corner of your *Focal Point* mailing 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). If you see either an RF or an xxx on your mailing label that means that your membership is about to expire or has expired. Please send your renewal right away. If you have questions or concerns or need to update your contact information, please let the AAC Treasurer Sharon Carruthers know. Sharon's contact information is on p. 7.

## Astro Images by Chuck Painter

The images on this page were made during the 2010 Peach State Star Gaze at the Deerlick Astronomy Village this past October.

All pictures taken with the following equipment:

Astro-Tech 8" Ritchey-Chretien at F/8.

Orion Starshoot Pro one shot color camera.

Orion ST-80 F/5 achromatic refractor guidescope.

Orion Starshoot autoguider.

Orion Atlas EQ-G mount.

Image acquisition was with Maxim DL limited edition.

Post processing was done with with Nebulosity, Deepsky Stacker, Pixinsight LE, and Photoshop Elements.



*M74 - Spiral Galaxy in Pisces*



*NGC 281 - The Pacman Nebula in Cassiopeia*

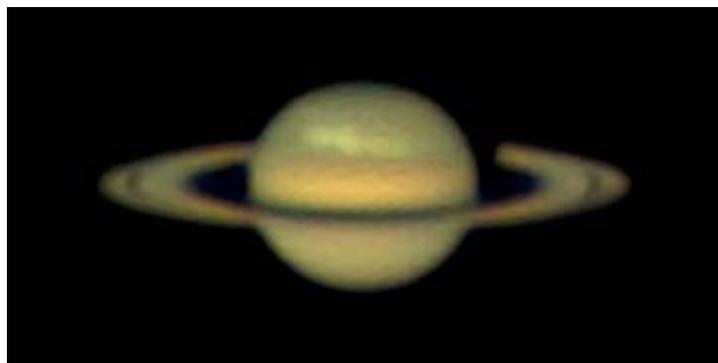


*NGC 7293 - the Helix Nebula in Aquarius*

## Developing Storm System on Saturn

Richard Jakiel made this image of a large storm system developing in Saturn's northern hemisphere. It was taken December 29, 2010 at 11:25UT (D=17.1", I=19.5, II=175.1, III=306.8).

Imaged with a 12" LX200 at f/18, DBK color camera - 1100 frames stacked. Seeing - poor 3(10), Transparency 4(10), Duck Dodgers Observatory, Lithia Springs, Georgia.



## Hubble Images Supernova Bubble

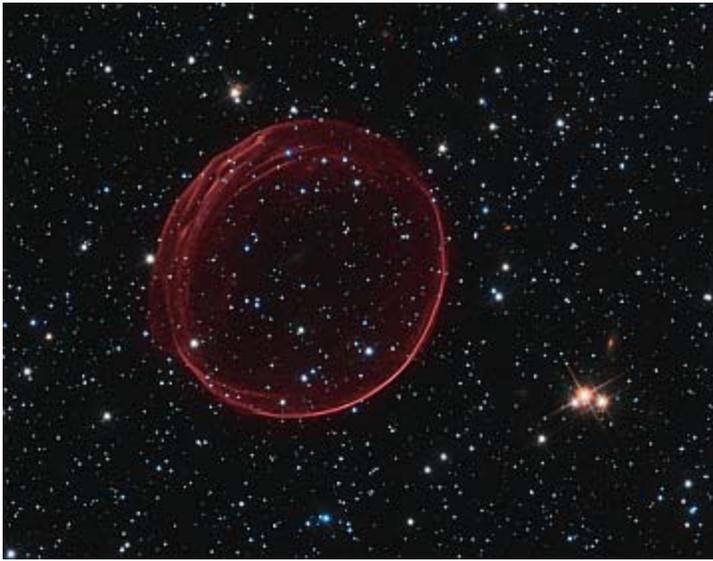
Space Telescope Science Institute News Release - December 14, 2010

A delicate sphere of gas, photographed by NASA's Hubble Space Telescope, floats serenely in the depths of space. The pristine shell, or bubble, is the result of gas that is being shocked by the expanding blast wave from a supernova. Called SNR 0509-67.5 (or SNR 0509 for short), the bubble is the visible remnant of a powerful stellar explosion in the Large Magellanic Cloud (LMC), a small galaxy about 160,000 light-years from Earth.

Astronomers have concluded that the explosion was one of an especially energetic and bright variety of supernovae. Known as Type Ia, such supernova events are thought to result from a white dwarf star in a binary system that robs its partner of material, takes on much more mass than it is able to handle, and eventually explodes.

Ripples in the shell's surface may be caused by either subtle variations in the density of the ambient interstellar gas, or possibly driven from the interior by pieces of the ejecta. The bubble-shaped shroud of gas is 23 light-years across and is expanding at more than 11 million miles per hour (5,000 kilometers per second).

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Credit: NASA, ESA, and the Hubble Heritage Team (STScI/AURA).  
Acknowledgment: J. Hughes (Rutgers University)

Hubble's Advanced Camera for Surveys observed the supernova remnant on October 28, 2006, with a filter that isolates light from glowing hydrogen seen in the expanding shell. These observations were then combined with visible-light images of the surrounding star field that were imaged with Hubble's Wide Field Camera 3 on November 4, 2010.

With an age of about 400 years as seen from Earth, the supernova might have been visible to southern hemisphere observers around the year 1600. However, there are no known records of a "new star" in the direction of the LMC near that time. A more recent supernova in the LMC, SN 1987A, did catch the eye of Earth viewers and continues to be studied with ground- and space-based telescopes, including Hubble.

## How Often do Giant Black Holes Become Hyperactive?

Chandra X-Ray Center News Release - December 20, 2010

A new study from NASA's Chandra X-ray Observatory tells scientists how often the biggest black holes have been active over the last few billion years. This discovery clarifies how supermassive black holes grow and could have implications for how the giant black hole at the center of the Milky Way will behave in the future.

Most galaxies, including our own, are thought to contain supermassive black holes at their centers, with masses ranging from millions to billions of times the mass of the Sun. For reasons not entirely understood, astronomers have found that these black holes exhibit a wide variety of activity levels: from dormant to just lethargic to practically hyper.

The most lively supermassive black holes produce what are called "active galactic nuclei," or AGN, by pulling in large quantities of gas. This gas is heated as it falls in and glows brightly in X-ray light.

"We've found that only about one percent of galaxies with masses similar to the Milky Way contain supermassive black holes in their most active phase," said Daryl Haggard of the University of Washington in Seattle, WA, and Northwestern University in Evanston, IL, who led the study. "Trying to figure out how many of these black holes are active at any time is important for understanding how black holes grow within galaxies and how this growth is affected by their environment."

This study involves a survey called the Chandra Multiwavelength Project, or ChaMP, which covers 30 square degrees on the sky, the largest sky area of any Chandra survey to date. Combining Chandra's X-ray images with

optical images from the Sloan Digital Sky Survey, about 100,000 galaxies were analyzed. Out of those, about 1,600 were X-ray bright, signaling possible AGN activity.

Only galaxies out to 1.6 billion light years from Earth could be meaningfully compared to the Milky Way, although galaxies as far away as 6.3 billion light years were also studied. Primarily isolated or "field" galaxies were included, not galaxies in clusters or groups.

"This is the first direct determination of the fraction of field galaxies in the local Universe that contain active supermassive black holes," said co-author Paul Green of the Harvard-Smithsonian Center for Astrophysics in Cambridge, MA. "We want to know how often these giant black holes flare up, since that's when they go through a major growth spurt."

A key goal of astronomers is to understand how AGN activity has affected the growth of galaxies. A striking correlation between the mass of the giant black holes and the mass of the central regions of their host galaxy suggests that the growth of supermassive black holes and their host galaxies are strongly linked. Determining the AGN fraction in the local Universe is crucial for helping to model this parallel growth.

One result from this study is that the fraction of galaxies containing AGN depends on the mass of the galaxy. The most massive galaxies are the most likely to host AGN, whereas galaxies that are only about a tenth as massive as the Milky Way have about a ten times smaller chance of containing an AGN.

Another result is that a gradual decrease in the AGN fraction is seen with cosmic time since the Big Bang, confirming work done by others. This implies that either the fuel supply or the fueling mechanism for the black holes is changing with time.



This two-panel graphic contains two composite images of galaxies used in a recent study of supermassive black holes. In each of the galaxies, data from NASA's Chandra X-ray Observatory are blue, and optical data from the Sloan Digital Sky Survey are shown in red, yellow and white. The galaxy on the left, Abell 644, is in the center of a galaxy cluster that lies about 920 million light years from Earth. On the right is an isolated, or "field," galaxy named SDSS J1021+1312, which is located about 1.1 billion light years away. At the center of both of these galaxies is a growing supermassive black hole, called an active galactic nucleus (AGN) by astronomers, which is pulling in large quantities of gas. Credit: X-ray: NASA/CXC/Northwestern Univ/D.Haggard et al, Optical: SDSS

The study also has important implications for understanding how the neighborhoods of galaxies affects the growth of their black holes, because the AGN fraction for field galaxies was found to be indistinguishable from that for galaxies in dense clusters.

"It seems that really active black holes are rare but not antisocial," said Haggard. "This has been a surprise to some, but might provide important clues about how the environment affects black hole growth."

It is possible that the AGN fraction has been evolving with cosmic time in both clusters and in the field, but at different rates. If the AGN fraction in

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clusters started out higher than for field galaxies -- as some results have hinted -- but then decreased more rapidly, at some point the cluster fraction would be about equal to the field fraction. This may explain what is being seen in the local Universe.

The Milky Way contains a supermassive black hole known as Sagittarius A\* (Sgr A\*, for short). Even though astronomers have witnessed some activity from Sgr A\* using Chandra and other telescopes over the years, it has been at a very low level. If the Milky Way follows the trends seen in the ChAMP survey, Sgr A\* should be about a billion times brighter in X-rays for roughly 1% of the remaining lifetime of the Sun. Such activity is likely to have been much more common in the distant past.

If Sgr A\* did become an AGN it wouldn't be a threat to life here on Earth, but it would give a spectacular show at X-ray and radio wavelengths. However, any planets that are much closer to the center of the Galaxy, or directly in the line of fire, would receive large and potentially damaging amounts of radiation.

These results were published in the November 10th issue of the *Astrophysical Journal*. Other co-authors on the paper were Scott Anderson of the University of Washington, Anca Constantin from James Madison University, Tom Aldcroft and Dong-Woo Kim from Harvard-Smithsonian Center for Astrophysics and Wayne Barkhouse from the University of North Dakota. More information, including images and other multimedia, can be found at: <http://chandra.harvard.edu> and <http://chandra.nasa.gov>

## The Next AAC Board Meeting

The next Board meeting of the Atlanta Astronomy Club is scheduled for Sunday, January 30th at 3PM at Emory University in the Math and Science building room N301. Contact President Mark Banks or Board Chair Marie Lott for more information about the meeting agenda.

## 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/atlaastro>.

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 (\$42)** for a family or single person membership. College Students membership fee is **\$15 (\$27)**. These fees are for a one year membership (\$12 per year extra charge to receive a printed *Focal Point* by mail).

Magazine subscriptions to *Sky & Telescope* or *Astronomy* can be purchased through the club for a reduced rate. The fees are **\$33** for *Sky & Telescope* and **\$34** for *Astronomy*. Renewal forms will be sent to you by the magazines. Send the renewal form along with your check to the Atlanta Astronomy Club treasurer.

**The Club address:** Atlanta Astronomy Club, Inc., P.O. Box 76155, Atlanta, GA 30358-1155.

AAC Web Page: <http://www.AtlantaAstronomy.Org>. Send suggestions, comments, or ideas about the website to [webmaster@AtlantaAstronomy.org](mailto:webmaster@AtlantaAstronomy.org). Also send information on upcoming observing events, meetings, and other events to the webmaster.

## AAC Officers and Contacts

**President:** Mark Banks [President@AtlantaAstronomy.org](mailto:President@AtlantaAstronomy.org)

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**PSSG Co-Chair:** Joanne Cirincione  
[starrynights@AtlantaAstronomy.org](mailto:starrynights@AtlantaAstronomy.org)

**Sidewalk Astronomy:** Brad Isley  
[sidewalkastronomy@AtlantaAstronomy.org](mailto:sidewalkastronomy@AtlantaAstronomy.org)

**Light Trespass:** Open - Contact Mark Banks if you would like to volunteer for this position

**Woodruff Observ. Coordinator:** Sharon Carruthers  
[Treasurer@AtlantaAstronomy.org](mailto:Treasurer@AtlantaAstronomy.org)

**AAC Webmaster:** Daniel Herron [observing@AtlantaAstronomy.org](mailto:observing@AtlantaAstronomy.org)

## Directions to White Hall at Emory

Our meetings are generally held in White Hall on the Emory University campus. White Hall is located on Dowman Drive across the street from the Math & Science building. The best place to park is the new parking deck next to the Math & Science building. It provides easy access to both the Math & Science building and White Hall. There is a Barnes and Noble and other shops on the top floor of the parking deck, so there are some nearby things to do while waiting for the meetings to start. The best way to access this parking deck is to turn onto Oxford Road from the five way intersection across from Everybody's Pizza. The entrance to the parking deck is a short ways down Oxford on the right. For maps of the campus see <http://map.emory.edu>. For more detailed directions to Emory University, visit [www.atlantaastronomy.org](http://www.atlantaastronomy.org) or go to the Emory University web site.

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

### AAC Events are listed in **BOLD**

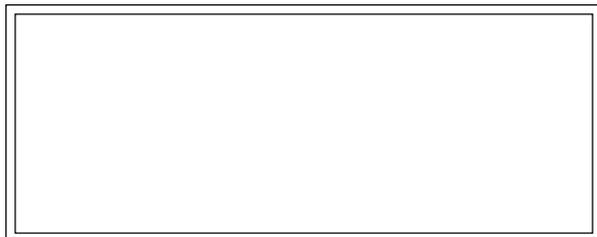
- Jan 4th, Tuesday: New Moon. Latest Sunrise in Atlanta: ~7:42 AM.  
Jan 8th, Saturday: **Charlie Elliott Chapter Mtg. DSO at DAV.** Venus Greatest Elongation West.  
Jan 9th, Sunday: Mercury at Greatest Elongation West.  
Jan 12th, Wednesday: Moon First Quarter.  
Jan 19th, Wednesday: Full Moon.  
Jan 21st, Friday: **AAC Meeting at White Hall, Emory Univ, 8PM.**  
Jan 26th, Wednesday: Moon Last Quarter.  
Jan 28th, Friday: **Focal Point Deadline.**  
Jan 29th, Saturday: **Telescope Help Session at VR - see p.4.** Moon between Venus and Antares.  
Jan 30th, Sunday: **AAC BoD Meeting. - See p.7 for details.**  
Feb 1st, Tuesday: Moon near Mercury.  
Feb 2nd, Wednesday: New Moon.  
Feb 5th, Saturday: **Charlie Elliott Chapter Meeting. DSO at DAV.**  
Feb 6th, Sunday: Moon near Jupiter.  
Feb 11th, Friday: Moon First Quarter.  
Feb 18th, Friday: **AAC Meeting at White Hall, Emory Univ, 8PM.** Full Moon.  
Feb 24th, Thursday: Moon Last Quarter.  
Feb 25th, Friday: **Focal Point Deadline.**  
Feb 28th, Monday: Moon near Venus.  
Mar 4th, Friday: New Moon.  
Mar 5th, Saturday: **Charlie Elliott Chapter Meeting. DSO at Woodruff Boy Scout Camp.**  
Mar 12th, Saturday: Moon First Quarter.  
Mar 18th, Friday: **AAC Meeting at White Hall, Emory Univ, 8PM.**  
Mar 19th, Saturday: Full Moon.  
Mar 31st-Apr 3: **Zombie Party & Messier Marathon at DAV - Contact Daniel Herron.**

### Atlanta Astronomy Club Listserv

Subscribe to the Atlanta Astronomy Club Mailing List: The name of the list is: AstroAtlanta. The address for messages is: [AsstroAtlanta@yahoogroups.com](mailto:AsstroAtlanta@yahoogroups.com) . To add a subscription, send a message to: [AsstroAtlanta-subscribe@yahoogroups.com](mailto:AsstroAtlanta-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](mailto: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 February is Friday, Jan 28th at 6:00 PM. Submissions will not be accepted after the deadline.**



FIRST CLASS



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

Newsletter of The Atlanta Astronomy Club, Inc.



*The Focal Point*

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