

# SIDEREAL TIMES

The Official Publication of the  
Amateur Astronomers Association of Princeton

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## From the Director

Welcome to October; popular for crisp, transparent skies and spooky things that go bump in the night (like a slewing SCT).

I hope you enjoyed Scott Tremaine's presentation on massive black holes at our September meeting. And thanks to Membership Chair, Linda Papetti, for putting together the refreshment table (including that AAAP birthday cake!).

As I write this, the Fed has just slashed its interest rate by fifty basis points. Now, with all that liquidity coming into the economy, it's a good time to mention – AAAP dues are due! Please remember to mail your \$40 renewal check to: **AAAP P.O. Box 2017 Princeton, NJ 08543**. Or give your payment to club Secretary Ron Mittelstaedt during next Tuesday's meeting. Your club counts on these funds for future operations, from observatory maintenance to Star Quest. And many thanks for your continued support!

There is still time to register for our Jersey Star Quest astrofest. Star Quest begins Friday afternoon, October 12 and wraps up Sunday morning, October 14. Come join us for fields of telescopes, and lots of astronomy camaraderie, equipment talk and dark sky observing.

**Annual Membership Dues (\$40) Are Payable Now—Please Bring Your Check or Cash to the October Meeting**

Or

Mail it to:

**AAAP, P.O. Box 2017, Princeton, NJ 08543**

This month ushers in great Fall selections in Pegasus, Andromeda, Pisces, Perseus and Cetus, to name a few. When enjoying the dark, open vistas of Coyle Field (in the Pine Barrens) the southern constellations are often my target. At Coyle, the Sea Goat and Water Bearer appear high in the sky due

to the flat horizon. Lying between those two constellations is a favorite visual challenge, NGC 7293 – The Helix Nebula. At most New Jersey locations, I don't attempt this seasonal specter with my 8" Newtonian. But Coyle (and, I might add, the field at Star Quest), invites the Helix without reservation. What a treat, considering what a tricky visual object it can be. Another southern sky delight, rediscovered at Coyle, is NGC 253. You'll certainly recognize this celebrity spiral from photographs. Inclined toward our line of sight, this member of the Sculptor Group lies an estimated 10 million light years distance; and extending about 20 minutes of arc, it makes for a mighty impressive view, even in the 8". Put it on your Star Quest list.

If you haven't made the trip to Coyle Field, try it sometime. Except for the late October moon, it would be a most appropriate spot for Halloween astronomy. The coyotes often howl in the distance throughout the night.

*Cheers—John Miller,  
Director*

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## Membership Meeting Minutes September 11, 2007

Director John Miller introduced our lecturer Scott Tremaine from the Institute for Advanced Study at 7:56pm. After the lecture and recess, the general membership meeting was called to order by the Director at 9:36pm.

**Starquest:** The issue of attendees who want to visit Starquest for one day. The one day visit was set at \$20. This does not include bunking or food. It was decided that the food would be bought a few days prior to the event. We also receive a small discount on the housing if we clean the bunking at the end of the event. The Coulter Dobsonian will have to be put in raffle prize condition. Rex's team will be on duty September 15th and will examine the scope house at the observatory.

Ludy will head the cooking of the food, Larry Smith the purchasing of the food. Seems that all cooking utensils are at the Hope Conference facility.

A slate of lecturers has not been finalized at this time.

**Observatory:** John Miller has stated that the ground that was cleared last Spring is starting to grow back. He has advised that tree stump

removal and leveling of ground is needed. If something is not done soon the money spent for clearing would have been wasted. The question to be put to the membership is do we want this work be done professionally or be done by the membership. John Church and Gene Ramsey will investigate and plot where and how many stumps are located on this property. They will report their findings at the next meeting.

The wood is rotting at the Northwest corner of the roof rail attachment where the roof attach turnbuckle is located. Gene and John will also assess this damage.

**Sidereal Times:** Larry Kane will publish monthly announcements on keyholder training schedules in the Sidereal Times. Keyholders will be contacted regarding availability for helping with the training.

Ira Polans had stated that the Sidereal Times maybe be published in a new format. No other details were available.

Treasurer Michael Mitrano stated the treasury balance \$12,246.00

**Public Outreach:** Jeff Bernardis stated that this is the slow time for school activities. John Miller suggested an interest in sidewalk astronomy in Princeton. A scope or several scopes would be set up in front the library. Permission would have to be obtained for a one time event from the borough of Princeton. A telescope clinic was suggested, this could be done at Starquest.

**The deadline for the November issue is:**

**Friday, November 2, 2007**

**Send your submissions to:**

**editors@princetonastronomy.org**

**Lecture Programs:** Ludy D'Angelo stated that November speaker Greg Olson has had to move to January 2007 due to a conflict. The November lecture is therefore open and June is still tentative. He also stated that speakers are needed for Starquest.

Bill Murray reported that The New Jersey State Planetarium is participating in the South River Walk event on September 29 and asked for AAAP participation.

Meeting was adjourned at 10:20pm

*Ron Mittelstaedt, Secretary*

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## Treasurer's Report

The association's fiscal year began on July 1. From that date through September 15, income received was \$755. Most of this is from the first dues payment for the 2007-8 year, and those dues will continue to come in during the weeks ahead. Expenses for the fiscal year to date total \$1,281, of which \$853 represents tree removal and drainage pipe for the Washington Crossing observatory. For the first 2½ months, the association shows a \$526 deficit, which is expected given the observatory improvements and timing of dues.

The association's cash and investment balances totaled \$11,680 on September 15.

*Michael Mitrano, Treasurer*

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## From the Program Chair

We are off to a great start as Dr. Scott Tremaine gave a very engaging talk on the different types of black holes in our universe. The lecture hall was well attended with members and many new faces in the crowd.



*Dr. Tremaine answers member's questions during the break.*



On October 9th, Dr. Arlin Crofts of Columbia University will present a talk on "Transient Lunar Phenomenon". These type of phenomena are possibly associated with outgassing under the surface of the moon along with other possibilities for what they are. These occurrences have been observed as far back as 557 AD, even the Apollo 11 mission reported to have seen one after attaining lunar orbit. Dr. Crofts will give more information about them and his study of them. Something's happening on the moon; we're going to find out the nature of it.



*The TLP is the small, bright spot in the center of the image. Credit Columbia University*

There are two 10 minute talks scheduled for the coming months. In November, club member Richard Fabbri will give a short talk titled "What can self-organization teach us about the solar system? And in December, there will be a 10-minute talk by Theresa Moody about Project Astro Nova.

Our November speaker, Greg Olsen, had a conflict with that time, but he will be presenting his lecture in January. This leaves November open for the moment.

Starquest is fast approaching, and I am continuing to find a speaker for our event there. Watch the website for updates.

Please send any comments or suggestions to

*Ludovico D'Angelo, Program Chair*

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## Picture This—"The Bubble Nebula"

This month's object is NGC7635, also known as the Bubble Nebula. Located in the constellation Cassiopeia, this planetary nebula is 6 light years across and some 7100 light years distant. The bubble shape is really apparent from our perspective as the gases from the 8<sup>th</sup> magnitude star are blown from its stellar winds into this round form.

This image was taken from the Simpson Observatory through the C14. Bill Nagel and I spent some time after a public night to try out his 0.5X focal reducer on my camera. Using an H-alpha filter to capture this we spent a mere 30 minutes (30 x 1 minute exposures) on this object. We would have like some more time but the clouds had other ideas.



*H-alpha view of the Bubble Nebula*

The full-scale composite images are available to those who are interested. The images posted in the Sidereal are reduced to fit the format of the periodical, the actual full size detailed color (when available) images are something not to be missed. If you would like to get the full image electronically please send me a request at \_\_\_\_\_ and I will put you on my image email list

*Brian Van Liew*

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## Observatory News

John Church and Gene Ramsey have surveyed the newly cleared ground between the observatory and the asphalt road. A decision will be made to, either have a professional landscaping company or AAAP members perform the task of removing the tree stumps and grading the cleared area.

The wood on the Northwest corner of the observatory has rotted where the roof hold down turnbuckle attaches. This will have to be repaired by replacing the effected wood under the roof rail.

A problem that cropped up last winter with the Paramount ME was addressed by removing the factory applied grease on the RA and DEC drive worm gears. Ludy D'Angelo and I applied an extreme high and low temperature silicone grease. The cold

weather problem was confirmed by Software Bisque that, with the upgraded printed circuit boards, the drive sensors are more sensitive. With frigid temperatures, the original grease becomes thick and applies a resistance to the gears. The sensors see this as a blockage fault and shut down the initial mount set up.

Previously, the clutch would have to be released and the RA and DEC axis exercised by hand. After this operation we would then repeat the start up without any faults. The new grease should alleviate this problem. We'll see if the new lubricant was a success next time the temperature dips into the 30's.



*Ludy D'Angelo and Ron Mittelstaedt lubricating the clock drive worm gears on the Paramount ME. Photo by George D'Angelo*

After the lube job, Ludy and I pounded in the copper rod for the secondary earth ground for the observatory electrical system. The next day I ran the copper wire through the observatory wall and into the circuit breaker box.

*Ron Mittelstaedt Co-observatory chairman*

## Interested in keyholder training?

**Contact:**

**cell phone**

**or by**

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## Observations

On September 7<sup>th</sup> and 8<sup>th</sup>, 2007 I hosted the third annual Stokes Fall Star Party held on the grounds of the Montclair School of Conservation, near Branchville, NJ. Since the proceeding Monday I had been checking the weather on various web sites. The forecast ranged from clear to mostly cloudy on Friday night. The Clear Sky Clock was probably the most accurate saying that it would be clear, but the transparency would improve after 10pm.

The skies did clear around 11pm and stayed that way till about 3am when I retired for the night. I could list all the objects I observed, but the highlight of the night was when someone pulled out the main power cord to all the observing field at about 1am. At that point my computer lost all the go-to settings. I really didn't want to go through the entire setup so I starting star-hopping. There were also other observers around me star-hopping and asking me where to find certain objects.

The first object was M-76, the Little Dumbbell or Cork Nebula in the constellation Perseus. Located near the star phi Perseus, it was not so easy an object to view in a 4" refractor, but quite easily seen in a 11" SC and just a bit better in a 16" open truss Dob. I then switched to Auriga to view M-37, M-36, and M-38, fine open clusters. Next we

headed down to M-1, the Crab Nebula. This object is best observed with an Oxygen III filter. These were just a few of the many objects we found by star-hopping. I find that I need at least a 5.5 to 6 magnitude sky to do serious star-hopping. Many obscured objects can only be found by using the dim stars near them. As the night continued, we observed many NGC objects listed at around 12th magnitude.

I had about 18 attendees to this event. Most from the STAR astronomy club. AAAP has maybe 10% of its membership actually doing observing other than at the Simpson Observatory or Starquest. STAR astronomy club has about 35%. Just shows the different interest of members of other clubs. Brian Van Liew was the only other AAAP member to attend my event. Brian is in constant search of darks skies in which to fill his imaging interest. I enjoy the company of fellow amateur astronomers who share the same interest by just appreciating the night sky especially when it's a rather dark sky.

The forecast for Saturday night was not favorable with thunderstorms and cloudy skies predicted. I provided breakfast on Saturday morning for all attendees. I almost ran out of food. I think a few of the observers weren't planning to have lunch or dinner that day. For the amount of attendees I had, they devoured over forty pancakes, 3.5 pounds of bacon and 30 cups of coffee.

After breakfast we broke down our equipment and headed to High Point Scientific. I wanted to see if they had the new Televue Ethos eyepiece. Found that they haven't shipped yet. I tried out the new Televue Ethos eyepiece at the AOS Starfest last June and found the 13mm 100 degree field of view very pleasing especially on globular clusters in my C-11. I already have a 13mm Nagler type 6 which after obtaining the Ethos will be sold. I don't need two eyepieces of the same power. Hopefully I will have the Ethos by Starquest.

After lunch at the local pizza shop, we all headed home hoping that next year we will maybe get two good nights, but one good night is better than none.



Above is the award I received from the AOS (Amateur Observers Society of Long Island) at their Starfest Starparty last June for participating in their deep sky challenge.

Ron Mittelstaedt

## Exploration Update and Science Outreach

During the month of September, member Ken Kremer gave a series of astronomy lectures across central Florida to kids of all ages (6 to 96) focusing on the exploration of Mars by the rovers *Spirit* and

*Opportunity*, the newly launched Phoenix mission to the Martian north polar icy soil, and the soon to launch DAWN mission to the Asteroid Belt.

**Plantation Astronomy Club:** Leesburg, Florida, Sep 10, 2007



Ernie Rossi is a well known and well liked Amateur Astronomer from New Jersey and good friend to several AAAP members. Furthermore, Ernie is an expert avid observer, accomplished astrophotographer and President/Co-Founder of The Plantation Astronomy Club in the retirement community to which he recently relocated. Here he proudly stands by a small segment of his armada of over 40 scopes, including a 24 inch Dob, housed in his garage. And he regularly employs them all!



Over 90 people from several astronomy clubs in sunny central Florida survived the "6 minutes of Terror" and landed safely "On Mars in 3-D" at the Plantation Astronomy Club, co-founded by retired NASA Space Shuttle engineer Terry Mitchell (standing back). Most decided on an "Earth return trajectory" when the nighttime Martian temperature plunged to below -100 degrees F, more suited to penguins traversing the Antarctic.

**Central Florida Astronomical Society (CFAS):** Orlando, Florida, Sep 12.



Inside the beautiful Planetarium at Seminole County Community College the crowd of kids, teenagers and adults enjoys viewing giant Martian posters and a discussion on the search for life beyond earth. CFAS holds their monthly meetings in the Planetarium, and is the largest astronomy club in central Florida and actively engaged in public outreach.

**Stetson University:** DeLand, Florida, Sep 13.



*Stetson is a fine liberal arts school north of Orlando. The Physics Department and Society of Physics Students invited me to present the latest results on the NASA Mars rover mission in a lecture titled "Exploring Mars (and Asteroids), the Search for Life and a Journey in 3-D". The Opportunity rover had just entered the 1/2 mile wide Victoria crater on the morning of my presentation. My team of Mars enthusiasts quickly stitched together a new mosaic of the latest images from inside the downward facing slopes which I presented for the first time to the crowd of university students and general public, numbering over 80. Aviation Week and Space Technology magazine Senior Editor Craig Covault was in attendance. Craig previously made a presentation at the Oct 2005 AAAP Monthly Meeting.*

**George Marks Elementary School,** DeLand, Florida, Sep 14



*These elementary school kids were literally cheering with excitement as they witnessed 3-D views of Mars from Earth's invasion fleet of 2 surface rovers and 3 orbiters. Ken gave 2 interactive presentations of "Twin Robots Explore Mars" to the entire 4<sup>th</sup> and 5<sup>th</sup> grade classes, about 500 students total, clearly interested in science and yearning to explore the distant reaches of our solar system. Later in the day he spoke to another 300 8<sup>th</sup> graders at the DeLand Middle School.*

**Cassini:** Flew within 1000 miles of the fascinating yin and yang moon Iapetus on 10 Sep 2007 and transmitted breathtaking images of its walnut like equatorial bulge and the interface of the bright-as-snow and dark-as-tar regions. See highlights from Cassini at my upcoming local talks listed below.

**DAWN Asteroid Orbiter:** The launch window opens on September 26 for this first mission ever to explore the earliest epochs in the formation of our solar system within the Asteroid Belt at 1Ceres and 4Vesta. Weather permitting; Ken plans to attend the launch.

Ken's upcoming astronomy talks include:

**Rittenhouse Astronomical Society (RAS) at the Franklin Institute:** Philadelphia, PA, Wed, Oct 10, 8 PM. "Launching

*DAWN and Phoenix*". Website: <http://www.rittenhouseastronomical.society.org>

**Stella Della Valley Star Party:** Ottsville, PA, Sat, Oct 13, 3 PM. "Exploring Mars, the Search for Life and a Journey in 3-D". Website: <http://www.bma2.org/Sdv.html>

**Amateur Astronomer's Inc (AAI) at Union County College:** Cranford, NJ, Fri, Oct 19, 8 PM. "Mars, Saturn, Comets and Beyond (in 3-D)". Website: <http://www.asterism.org>

**Dorothea's House:** Princeton, NJ, Sun, Dec 2, 5 PM. "Italian Contributions to Space Exploration (in 3-D)". <http://www.dorotheashouse.org>

For science outreach presentations please contact

*Ken Kremer, Past Program Chairman*

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## Other News...



*As noted in last month's issue the large section just east of the observatory has been cleared over the summer*

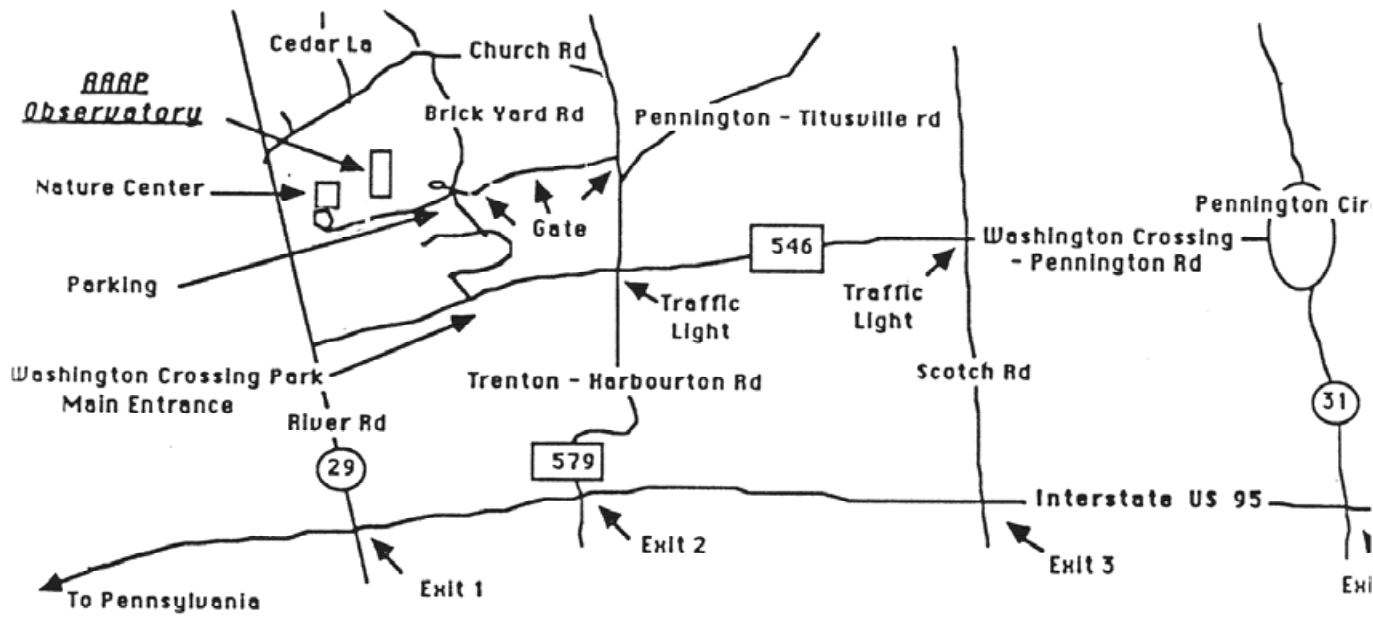
## Sharpest Direct Images Ever Taken in Visible Light

Astronomers from the California Institute of Technology (CalTech) and the University of Cambridge in the UK have developed a new camera that produces much more detailed pictures of stars and nebulae than even the Hubble Space Telescope, and it does all this from telescopes here on Earth. The camera works by recording partially corrected adaptive optics images at high speed (20 frames per second or more). Software then checks each image to sort out which are the sharpest. Many are still significantly smeared by the atmosphere, but a small percentage of them are unaffected. These are combined to produce the final high-resolution image that astronomers want. The technique is called "Lucky Imaging" because it depends on the chance fluctuations in the atmosphere sorting themselves out and providing a set of images that is easier for the adaptive optics system to correct.

This work was carried out on the 200-inch (5.1 meter) Hale Telescope on Palomar Mountain. Like all other ground-based telescopes, the images it normally produces are typically 10 times less detailed than those of the Hubble Space Telescope. Palomar's adaptive-optics system produces superb images in the infrared, but until now, its images in visible light have remained markedly poorer than Hubble images. With the new Lucky Camera, astronomers were able to obtain images that are twice as sharp as those produced by the Hubble Space Telescope—a remarkable achievement.

For the full article copy the link below into your browser.

*Extract Credit: Guy Pirro on Astromart*  
[http://www.astromart.com/news/news.asp?news\\_id=723](http://www.astromart.com/news/news.asp?news_id=723)



The best way to get to the observatory is to take Interstate 95 South towards Pennsylvania. Then take Scotch road at Exit 3 and proceed north (this amounts to right). Then, at the third traffic light take a left onto the Washington Crossing-Pennington road (County Route 546). Take this road to the first traffic light and take a right onto Trenton-Harbourton road (County Route 579). Take this road to the first driveway on the left, this is the Phillips Farm/Soccer Field entrance to the park. There is a series of three gates with club combination locks. If the gates are not open, you will need the lock combination to open the gate or be accompanied by a Keyholder member. The Simpson (AAAP) Observatory's phone number is (609) 737-2575.

See us on the Web: [www.princetonastronomy.org](http://www.princetonastronomy.org)

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