

SIDEREAL TIMES

The Official Publication of the
Amateur Astronomers Association of Princeton

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Brian VanLiew

Program Chairman

Ken Kremer

Assistant Director

John Miller

Secretary

Ludy D'Angelo

Editors

Bryan Hubbard and Ira Polans

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May 2007

Number 5

From the Director

AAAP Meeting May 8 (8:00 Peyton Hall). This month (the Annual Meeting, see below) our astronomical excursion enters the important domain where aesthetics and science meet head-on. We will consider how scientific reasoning, elegance in thought, and appreciation of the beauty and order in astronomy lead to a deeper understanding of the cosmos and astrophysics. Our guest speaker will be **Dr. Guy Consolmagno of the Vatican Observatory**. His talk at AAAP is entitled, *“God, Astronomy, and the Search for Elegance”*. Dr Consolmagno is **author of several astronomy books** (you may have read his popular book, *Turn Left at Orion* (with Dan Davis; Cambridge Univ. Press, 1995). In his professional work, Dr. Consolmagno divides his time between Tucson, Arizona, where he observes asteroids and Kuiper Belt comets with the Vatican's 1.8 meter telescope on Mt. Graham, and Castel Gandolfo, Italy, where he is curator of the Vatican's noted meteorite collection. Dr Consolmagno earned his Ph. D. in Planetary Sciences from University of Arizona, and studied geochemistry of the asteroids and the moons of the outer planets. After post doc's at the Harvard College Observatory and MIT, he took vows as a Jesuit brother, and combined studies in philosophy and theology at Loyola University and physics at the University of Chicago. He also spent several terms as a visiting scientist at the Goddard Space Flight Center and Loyola College, Baltimore, and Loyola University, Chicago.

I was enthralled to hear and meet Dr Consolmagno at his talk at the Rutgers Geology Museum Open House in Jan this year, where he gave a dynamic talk on “What Happened to Pluto”. This is a subject in which Guy has firsthand insight, with his ranking position on the Planet and Moons Committee of the International

Astronomical Union, which was charged with defining a planet. He is an engaging and talented speaker, and I hope to see a major turnout of AAAP members for the seminar on May 8. This would be a very good choice to bring a friend or family member to engage in a provocative discussion of the boundaries of science and philosophy.

May 8 is the Annual Meeting for AAAP. Each May we hold our Annual Meeting, a time to reflect on past accomplishments and to reestablish our club's leadership through the **election of the Board of Trustees**. We hope to see a good turnout for this annual meeting, as we renew our commitment to provide great astronomy lectures, great facilities and opportunities for observing and learning about telescopes, and excellence in outreach and astronomy education for our club and community.

Observatory and Springtime Galaxies. Yes, springtime is for galaxy hunting, whether you're observing visually with the C14 at the club's observatory in Washington Crossing, or using your own telescope at home. I found and photographed the collection of magnitude 9-11 galaxies below, during the month of April from my backyard in Titusville. For this I used my 11 inch Celestron (C11) at f/10 with SBIG ST-10 CCD camera and Losmandy/Celestron G11 German-equatorial mount, and Maxim-DL software control. CDD integrated exposure times for the images varied between 24 and 70 minutes. It's astonishing to see the variations in shape, structure, and spiral form among these galaxies. The identity, constellation, magnitude, and angular size (in arc minutes) for each is given below. These deep sky wonders can all be seen visually (under good seeing conditions) with acquired skill and averted vision in some cases, at the AAAP observatory using our C14-- and many can be observed with smaller telescopes. How many can you see in a night at the eyepiece?

A cavalcade of springtime galaxies! astrophotos by Rex Parker, 2007



M105 in Ursa Major (right), mag 10.1 size 5.3 x 4.7

The deadline for the June issue is:

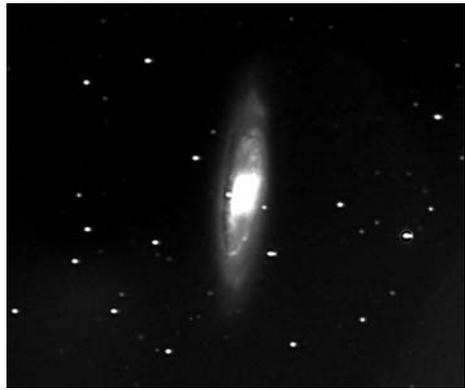
May 18 2007

Send your submissions to:

editors@princetonastronomy.org



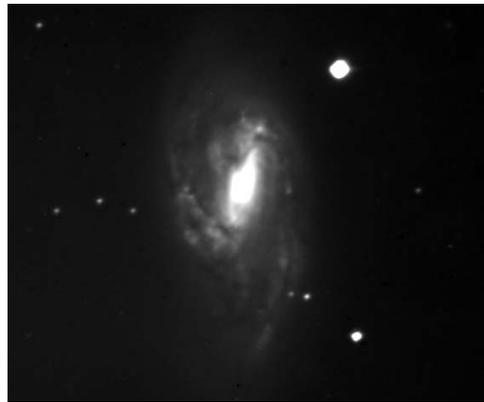
M108 in Ursa Major mag 10.7 size 8.7 x 2.3



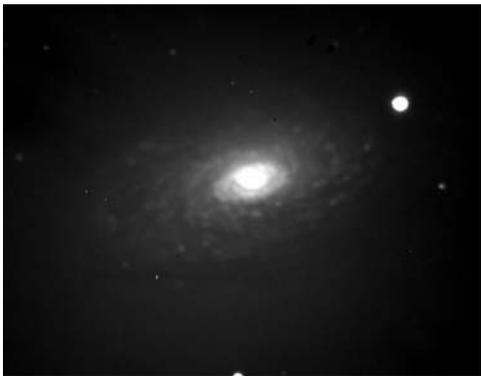
M65 in Leo mag 10.1 size 9.7 x 2.8



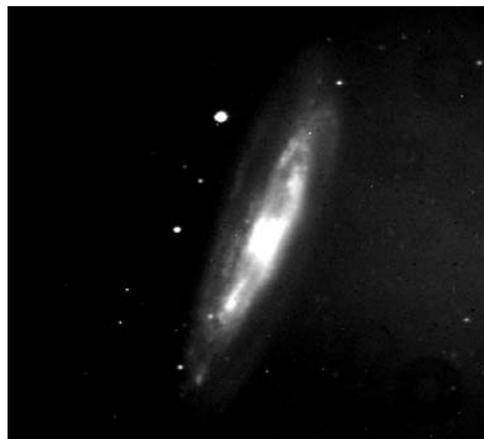
M109 in Ursa Major mag 10.6 size 7.7 x 4.7



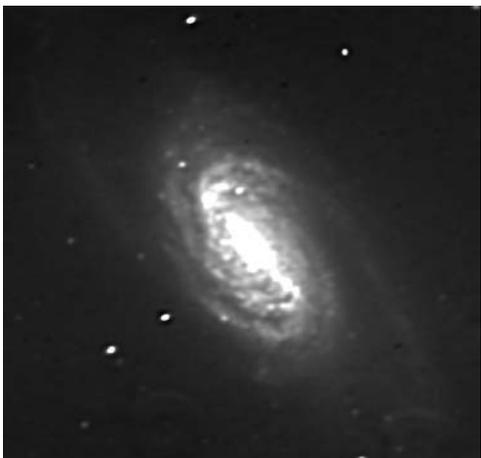
M66 in Leo mag 9.6 size 9.2 x 4.2



M63 in Canes Venatici, mag 9.6 size:12.6' x 7.2



M98 in Virgo mag 10.8 size 9.7 x 2.7



NGC 2903 in Leo mag 8.9 size 13 x 5'



NGC 4565 in Coma Berenices mag 9.6 size 12 x 1.5

Report of AAAP Nominating Committee

April 10, 2007

The Nominating Committee advises that the following officers

Rex Parker, Ken Kremer, and Brian van Liew, have all tendered their resignations from their present positions as Director, Program Chairperson, and Treasurer, respectively. We thank them for their many fine contributions to the AAAP and wish them all the best.

The Committee has nominated the following slate of candidates for the 2007-2008 club year. Two people presently on the Board have accepted nominations to positions different from those they presently hold. Two former officers have accepted nominations, and there would be one new Board member who has not previously held AAAP office. Additional nominations will be accepted at the May general meeting.

For Director: John Miller,
(*Present Assistant Director*)

For Assistant Director: John Church,
(*Historian, former Director*)

For Program Chairperson: Ludy d'Angelo,
(*Present Secretary*)

For Secretary: Ron Mittelstaedt
(*Former Treasurer*)

For Treasurer: Mike Mitrano,
(*Would be new to the Board*)

The slate of candidate will be read for acceptance by the membership at the monthly meeting of the AAAP, Tuesday, May 8, 2006.

After the reading of the slate, nominations for any of the positions will be taken from members in attendance.

*Respectfully submitted by the Committee:
John Church (Committee Chair), Gene Ramsey, Don Monticello, Jeff Bernardis, Ron Mittelstaedt*

From the Editor

Last issue marked Vic Belanger's last issue as Editor of Sidereal Times. As noted Bryan Hubbard and Ira Polans are now the editorial team. Bryan's responsibilities include editing and printing the issue. Ira's responsibility is laying out the issue and creating the PDF version. We'd thought we'd introduce ourselves to the club with short biographies.



Bryan Hubbard joined then AAAP after finding Vic's Introduction to Astronomy course on line and attending at the Nature Center. Although I had a 90mm Orion refactor

which I had bought some years before, I was not at all satisfied with it, particularly the equatorial mount. In addition, the light pollution in my area does not lend itself to good viewing.

After joining, I found that I enjoyed the science, lectures and members more than viewing. However, once I finally was able to afford my present telescope, a Meade 8" SCT, it made viewing considerably easier and far better. I am semi-retired, which means my old company keeps calling me back to help out in various ways, requiring part and full time work. My hobbies in addition to astronomy are woodworking, videography, shooting and archery. With only so much time to pursue these various interests and their associated organizations, in addition to family matters, it becomes hard sometimes to decide which has the priority.



Ira Polans joined the AAAP this past Fall after moving into the area. I attended occasional meetings as a guest. I've also been to the Simpson Observatory during the Mars opposition. I've always been interested in astronomy since grade school. When growing up I had a 4" Newtonian reflector from Criterion. I spent many an evening learning my way around the sky (not always successfully). My astronomical adventures include visits to the Lowell Observatory, Mauna

Kea, Australia for Halley's Comet, and camping and hiking in the Southwest.

My hobbies include photography, hiking, and bicycling. Professionally I am a project leader for a local engineering professional society. By joining the club I hope to spend more time getting to learn and explore the sky observationally.

Science Outreach and Exploration Update

Rittenhouse Astronomical Society (RAS) in the Franklin Institute: Philadelphia, PA, Wed April 11. 8 PM. RAS hosted me for a weekend of astronomy outreach. "*Mars, Saturn, Comets and Beyond in 3-D*". Website: <http://www.rittenhouseastronomicalsociety.org>.



Martian Bandits in Philly enjoy plotting deep entry by Opportunity rover into Giant 3-D Crater on Mars on April 11 at the Franklin Institute



The Solar System in 3-D presented by AAAP Program Chair Ken Kremer.

For science outreach presentations please contact me at Email:

*Ken Kremer
AAAP Program/Lecture Chairman*

June 12: Dr. Tony Del Genio from NASA Goddard Institute for Space Studies will present "*The Cassini Mission to Saturn*". He is a member of the Cassini imaging team.

On April 10, **Professor David Spergel**, Chair of the Department of Astrophysical Sciences at Princeton University was the keynote speaker for a talk titled "The Atacama Cosmology Telescope: A New Tool for Astronomy".



AAAP April 10 meeting audience enjoys Q&A with Prof David Spergel

From the Program Chair

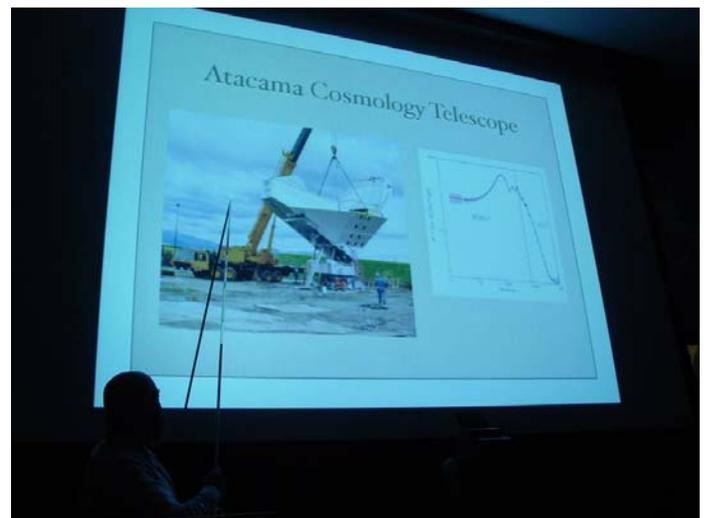
Upcoming 2007 AAAP Lecture Season

May 8: Brother Guy J. Consolmagno, Chair of the Division for Planetary Sciences of the American Astronomical Society and Curator of the Vatican meteorite collection at the Vatican Observatory in Castel Gandolfo, Italy is the keynote speaker. His talk is titled "God, Astronomy, and the Search for Elegance". Scientific theories must do more than merely satisfy the data; they must do so in a way that is (to use a term much favored by mathematicians) "elegant." Kepler, Maxwell, and Einstein are examples of scientists who found that a sense of esthetic "rightness" helped them to direct their scientific intuition toward theories that could then be expressed rationally, mathematically; theories that could then be tested against nature. By looking closely at a handful of astronomical images, we'll explore the way that one proceeds from an emotional appreciation of the beauty of the stars and planets, to a deeper understanding that satisfies both reason and emotion. Ultimately, this link between "elegance" and rational truth has profound theological implications.

At the Vatican Observatory since 1993, his research explores connections between meteorites, asteroids, and the evolution of small solar system bodies and observing Kuiper Belt comets with the Vatican's 1.8 meter telescope in Arizona. He has collected meteorites with an NSF-sponsored team on the blue ice of Antarctica.

For his contributions to the study of meteorites and asteroids, Consolmagno has been honored by the naming of an asteroid after him. Along with more than 100 scientific publications, he is author of a number of books including "Turn Left at Orion", "Worlds Apart: A Textbook in Planetary Sciences" and "Brother Astronomer, Adventures of a Vatican Scientist".

Dr. Consolmagno has served on the governing boards of the Meteoritical Society, is the past president of the International Astronomical Union Commission 16 on Planets and Satellites and served in the US Peace Corps in Kenya. This year he holds the Loyola Chair for visiting Jesuit scholars at Fordham University.



Prof Spergel describes construction of The Atacama Technology Telescope

Please send me any photos from any of the past or current exciting lecture evenings which you may have. And please attend the future AAAP lectures!

Email:

*Ken Kremer
AAAP Program/Lecture Chairman*

Observatory News

On Saturday night, March 17th we had our first refresher training for keyholders since the Paramount ME upgrade. The training lasted from 7pm till about 8:30pm as keyholders arrived. I have to give the keyholders credit for attending just after a sleet storm. My four wheel drive came in handy which took Jeff, Chris and I over the snow/ice surface to the observatory. Others who ventured to the observatory were: Rex Parker, Mike Mitrano, Vic Belanger, Ludy D'Angelo, and Nick Hillman.

Jeff Bernardis arrived early with me for his final check of the observatory operation. Jeff demonstrated a thorough knowledge and understanding of the operations of the observatory and was awarded his key. Chris Voinier also arrived with Jeff to perform his first observatory training session toward becoming a keyholder. The only item not covered was actually rolling off the roof. The C-14's dew shield was removed so the mount could slew in all directions.

On Saturday, March 24th was the second night of the observatory training sessions. This session was attended by Keyholders, Brian Van Liew, Jane Lanahan, Bill Murray, Gene Ramsey, and Don Monticello.

April 6th, was our first public observing night of the 2007 season. The mount performed the first hour flawlessly, than we had issues with finding certain objects. After rebooting the computer and recycling the mount, partial command was established. We re-established the park position and closed the observatory for the night.

On the following Monday, I called Software Bisque and was told another new upgrade was available on line and the time had to be checked for daylight saving. The next public session, April 13th, Jeff Bernardis and I arrived early to install the upgrade and reset the computer time. The scope ran fine for the entire night without a problem. There were about twenty Boy Scouts who visited the observatory that night; they were camping in the park. The Paramount ME and C-14 with the new Feathertouch focuser worked like a charm.

*Ron Mittelstaedt
Simpson observatory co-chairman*

Treasurers Report

The current balance as of this report stands at \$12201.28 with \$0.00 income and expenses at \$453.20.

*Brian Van Liew,
Treasurer*

Minutes of the General Meeting

*Amateur Astronomers Association of Princeton
April 10, 2007*

The meeting started at 8 PM.

Rex Parker (Director) welcomed new members and guests. He thanked and asked for a round of applause for Vic Belanger for his contributions over the years for being the editor of the Sidereal Times. That job has been turned over to Ira Polans and Bryan Hubbard. Rex also pointed out the recent article in the Sidereal Times concerning the light pollution at the Hopewell Township recreation fields. The township is now installing shielded lighting thereby cutting down the light pollution.

A ten-minute talk was given by John Miller (Assistant Director). He overviewed the AAAP website and showed members how to access different parts of the site. He also asked for any suggestions that the membership would like to see in the content of the website.

Ken Kremer (Program Chair) announced next month's speaker is Guy Consolmagno on Tuesday, May 8th. Ken then introduced David Spergel who is the Chair of the Department of Astrophysics at Princeton University. He gave a talk on the new Atacama Cosmology Telescope being built in Chile.

After the refreshment break, the meeting continued with results from the Nomination Committee. John Church (Nominations Chair) indicated that Rex Parker, Brian VanLiew, and Ken Kremer have given their resignation notice from the Board of Directors. John thanked them for their service. Gene Ramsey expressed his personal thanks to Ken Kremer for doing a great job as Program Chair.

John Church presented the nominations for the Board of Directors for the 2007-2008 season as follows:

Director - John Miller

Assistant Director – John Church

Treasurer – Michael Mitrano

Secretary – Ron Mittelstaedt

Program Chair – Ludy D'Angelo

The slate will be voted on at the next meeting. Additional nominations will be allowed prior to the vote at the next meeting.

Super Science Weekend will be in May. Emails will be sent out to ask for volunteers for the event.

Observatory: First public night was April 6th. Some minor problems with the software were evident, but should be corrected by the next open house. Ron installed the new Crayford focuser for the C-14. Gene Ramsey and John Church installed the sliding weight, which was donated by Saul Moroz, on the refractor. It was working very well.

Outreach: Jeff Bernardis reports that we received a donation check from Stuart Day School for the starparty we did for them. He also reported that the Princylopedia event was well attended and by hundreds of children. We gave out information, brochures, showed telescopes, and wore wizard hats for the event.

Ludy D'Angelo (Secretary) reported that the membership is at 104.

Brian VanLiew (Treasurer) was not at the meeting, but Rex Parker reported that the club has \$12,585 in the treasury.

The new email for submitting articles for the Sidereal Times is editors@princetonastronomy.org. Submissions for the May issue should be made by April 20th.

The meeting ended at 10:20 PM

*Ludovico D'Angelo
Secretary*

Celestron Sky Scout

John Miller has forwarded this link to an interesting viewing device called the Celestron Sky Scout. The link is <http://www.techonline.com/product/underthehood/198701782> where you will find details of this intriguing piece of technology. The article is written by David Carey and explains, in more detail than we show here, the functionality of this new instrument. Although it has no magnifying power, it allows the user to view the sky through two windows through which you center the object on both screens and press an identify button. There is also a locate function using flashing LEDs to indicate whether you are getting closer or moving away from the object's location. The article is an interesting read and explains in detail how GPS makes the device do it's magic.

Good -bye Winter...Hello Spring

This winter I picked up a William Optics Zenistar 66. The focal length is only 388mm with an aperture of 66mm. This little scope works great with my ccd camera in getting a nice size field for imaging. For example I can get all of M42 or NGC2264 in one shot. Then as Spring was approaching I tried this out on M81 & M82. I am really pleased with the images I obtained, not to mention the fit and finish to this little gem. WO offers this scope with a 10 to 1 Crayford focuser, which is very smooth and is a real pleasure to use. The dew shield slides out when in use and retracts when stowed back in it's travel case, which is standard with this scope. They also offer this model in a blue (for Meade) and orange (for Celestron) model. I guess they figure these scopes would be piggybacked on these manufacturers SCTs so one could pick the color to match.

Now that it's galaxy season, I will have to see what other groupings of galaxies I can take.



M-42



NGC2264



M81 and M82

Brian Van Liew

Pure Science: CERN the LHC Accelerator

As you probably know, the CERN Large Hadron Collider (LHC) accelerator near Geneva is in the final test stages before going on line in November of this year. The research objectives are of great interest to astronomers in the search for many of the secrets of the Universe. The elusive components of dark matter, understanding how the Universe works, why it is expanding, etc., and the physics experiment lineup is immense. The LHC uses the previously decommissioned LEP (Large Electron-Positron Collider) circuit tunnel which is 17 miles in circumference, and beam emissions are generated in the central generator called Atlas. This enormous machine weighs in at a little over 7800 tons and the beams it generates will race around the circuit in opposite directions waiting for one of those one-in-a-million collisions which generate the data needed to understand some of the secrets of the cosmos. The tunnel is 300 feet underground, and lined with magnets which force the charged particles into a circular trajectory keeping them in bunches. The beams will approach the speed of light making 11245 revolutions per second. Needless to say the power requirement is enormous, enough to supply a city such as Geneva. We look forward to the outcome of those early experiments to give insight into the wonders of the Universe.

Research, Bryan Hubbard

Swift Gamma Ray Burst Mission

Extract of the April Newsletter presented by PI Neil Gehrels

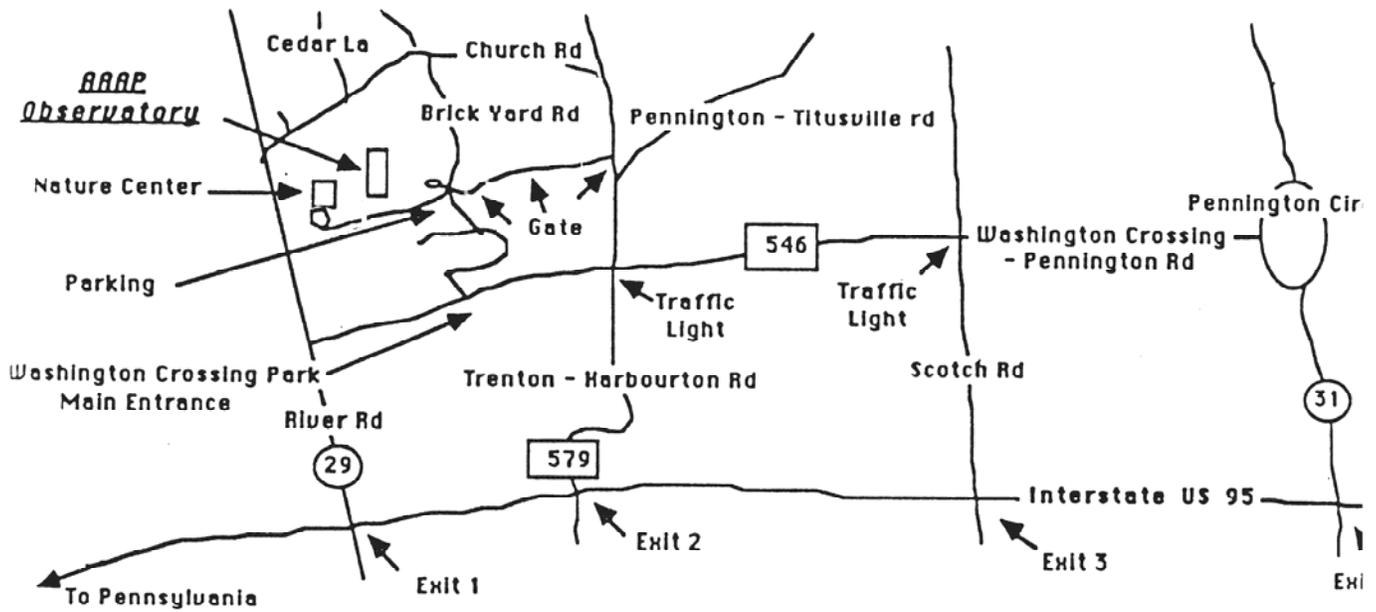
The team is busy analyzing today's data and planning ahead to the future. One important step in the planning of Swift time usage is a workshop that will be held at Penn State on May 1-2 (a time of typically beautiful weather in mid-Pennsylvania). The one and only topic of the public workshop is to gather input from the astronomical community about how best to use Swift's capabilities over the coming years to advance our understanding of the universe.

The meeting will focus not only on gamma-ray burst science, but also on non-burst opportunities. You may not be aware, but about 1/3 of the Swift observing time is used for non-GRB observations when bursts are not visible. A large and growing percentage of non-GRB time is spent on "Target of Opportunity" (ToO) observations based on urgent requests that come in via the internet. For example: Suppose an astronomer has access to data in the optical band from a black hole or neutron star system in our Galaxy and sees that the source is brightening dramatically. This kind of event happens frequently in our variable universe. She or he then fills out a form on the Swift web site requesting a Swift ToO observation of the source. Depending on the urgency, the web site initiates cell phone alerts to the duty scientist, the operations engineer at Penn State, and to me. We then quickly arrange a re-pointing of the satellite to observe the outburst. The fastest response to date has been ~30 minutes between alert and Swift data taking. The rate of such requests has been ramping up and is now at about one every other day.

I'm getting off track describing this exciting aspect of Swift operations ... the point is that we will discuss GRB and non-GRB science at the Penn State workshop and gather community opinions on what topics should be emphasized the most in the future. I predict we will continue to spend most of the Swift observing time on GRBs, but we may make small changes in the balance and will definitely tune the kinds and methods of GRB and non-GRB observations. It occurred to me just this week how precious this time is, with Swift fully operational and powerful telescopes all over the world and in space participating in Swift science. Optimizing the use of Swift observing time is a priority.

The complete Newsletter can be read at the link below, together with more detail of current GRB research activity.

http://swift.sonoma.edu/resources/multimedia/newsletter/issue_7/index.html



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

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