

# SIDEREAL TIMES

The Official Publication of the  
Amateur Astronomers Association of Princeton

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Rex Parker

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John Miller

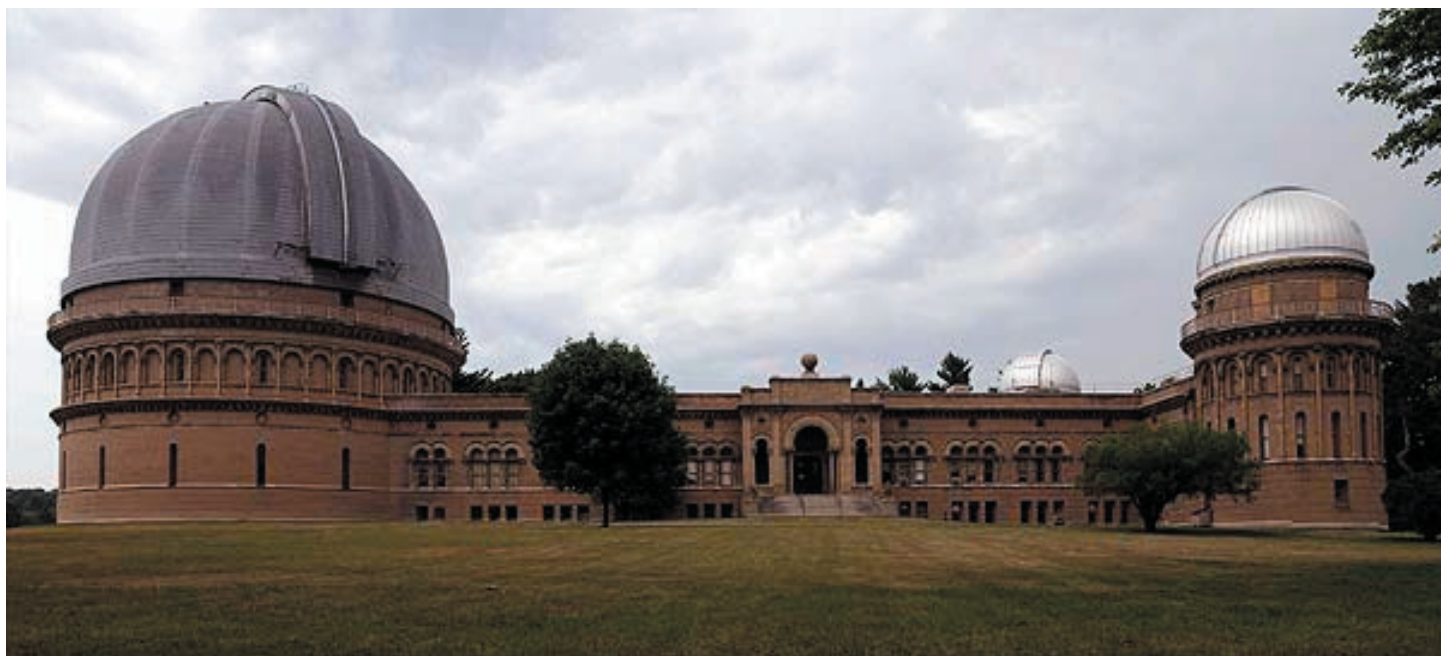
Secretary:  
Ludy D'Angelo

Editor:  
Victor Belanger

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Number 1



## From the Director

**Jan 10 AAAP Meeting** (Peyton Hall of Astrophysics, Princeton Campus, 8:00 PM). Don't miss our next meeting, where our astronomical excursion will take a turn towards astrogeology with the first talk of the new year. The renowned **Dr. Peter Rona of Rutgers University, Dept of Marine Geology and Geophysics** and formerly a researcher with the National Oceanic and Atmospheric Administration (NOAA), will present "***Volcanoes of the Deep Sea: The Science Behind the IMAX Films***". Dr. Rona's research on seafloor hydrothermal systems has provided breakthrough science while revealing extraordinary natural beauty in an environment more closely resembling extraterrestrial conditions than habitats on earth. Please see **Program Chair Ken Kremer's section** in this issue, and go to the AAAP website for more information and links. Note that this would be an excellent program to also include students.

(Director, continued on page 2)

Simpson Observatory (609) 737-2575

## From the Editor

**Yerkes Up For Auction** The University of Chicago, owner of the observatory, is receiving offers for the historic property in Williams Bay, Wisconsin. My Alma Mater, Aurora University (AU), has made a bid to purchase the observatory and the surrounding 79 acre site which is adjacent to their George Williams College campus for \$4.5 Million. This competes with a \$10 Million bid by a real estate developer for the Wisconsin property including the historic observatory.

AU met with the U of C last November and presented a plan to develop a consortium of outstanding science organizations and continue to use the property to deliver science education outreach programs as well as academic credit courses. I contacted Theodore C. Parge, Vice President for Advancement, Aurora University, to see if AU could give me any further information.

He said their proposal was well received and could only say they too were waiting for a decision from U of C expected early this year. He offered the following statement as to what Aurora wanted

(Editor, continued on page 2)

*(Director, continued from page 1)*

Those several of you interested in the fertile boundaries where astronomy, geophysics, geology, and biology intersect (as I am) will appreciate the impact of Dr. Rona's talk. Indeed, the development of astrogeology and astrobiology as important sub-disciplines within astronomy is driven by the contributions of Dr. Rona and his colleagues and contemporaries. These contributions range from advances in remote-sensing technologies, realization of the importance of plate tectonics to planetary dynamics and ecosystem formation, and better understanding of the evolutionary significance of chemoautotrophic life, with application to extraterrestrial planets and moons where solar and stellar luminance is too weak to support photosynthesis.

**Your "Cool New Astro Items" at the Jan Meeting.** Were you fortunate to receive a new astronomy-related item over the holidays (software, book, eyepiece, camera, even a telescope?) If so, and if you'd like to briefly tell us about it and/or show it off to your fellow AAAP'ers at the January meeting, please plan to bring it (or be prepared to just talk about it), and we'll include a handful of these "Cool Astro Items" during the meeting.

**2005: A Year of Progress in AAAP.** The past year has witnessed further growth and development in the AAAP with significant contributions from many members. And while public observing nights were often clouded out, after witnessing the hurricane season we really can't complain about our local weather and sky conditions. It's impossible to acknowledge everyone in the club who contributed, but I'd like to point out a few who really provided a spark in 2005. Ken Kremer rose to the challenge of Program Chair and the lecture series at Peyton Hall continued in its storied tradition of high science and remarkable presentations by top-flight scientists and engineers, with two book signings added for good measure! Brian Van Liew and Gene Ramsey did a great job organizing and improving the observatory and public outreach, with help from many others including John Church, John Miller, Ludy D'Angelo, Saul Moroz, and Ron Mittlestaedt. Jersey StarQuest was a strong success led by Don Monticello and Larry Smith (with clear skies), and our club ventured into a new fall star party at Stokes State Forest. We revised our By-Laws, and the membership reached the high nineties and secretary Ludy D'Angelo stepped up to organize the roster. The Sidereal Times (thanks to Vic Belanger and Bryan Hubbard) and the AAAP website (John Miller's magic) continued to provide outstanding and timely communication to all members, and Ron Mittelstaedt again kept the bank account solvent with help from John Church. **THANKS to all** who have contributed to make AAAP one of the best amateur astronomy clubs not only in NJ but in the entire country.

#### **2006 New Year's Resolutions and Goals for AAAP**

I challenge each member to again ask, and answer, these questions:

- What does the pursuit of astronomy mean to me personally?
- How can I inspire others to increase their interest and pursuit of astronomy?
- How can I participate in AAAP to elevate my own interests, and contribute in a way that helps advance the club and the future of amateur astronomy?

**AAAP Goals for 2006:** Here are a few goals from my list for our club:

- Further enhance membership activities and points of contact at meetings, the observatory, and special events
- Further develop the Keyholder training program and graduate at least 3 new Keyholders in 2006
- Continue to provide excellence in lecture programs, observing activities, and public outreach and education efforts
- Establish a viable succession plan for the Board of Trustees and other key positions in the club
- Have fun with fellow members doing astronomy!

Happy New Year and Dark Skies! -- Rex

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*(Editor, continued from page 1)*

to do with the facility, "We are hopeful that that our proposal will be selected as we believe it provides for the best long term academic use of the Observatory while preserving much of the natural landscape surrounding the building. The opportunity to focus the future of Yerkes around science education and the training of teachers in the areas of math and science is closely aligned with the academic commitment of AU and our George Williams College. The rich history and the presence of Yerkes could serve as a wonderful centerpiece for the future of our university's academic programming on our campus in Williams Bay."

An article about this development can be found in the December, 2005 edition of the "Reflector," the quarterly publication of the Astronomical League. If you would like to offer your advice to the U of C, write to Dr. Don Randel, President, University of Chicago, 5801 S. Ellis Ave, Chicago, Illinois 60637. If you would like to keep abreast of the progress on this, go to the Aurora University website:

<http://www.aurora.edu/yerkes/faq.htm>

**Rutgers Open House** The Geology Museum will be having their annual open house Saturday, January 28, from 9:00 AM to 4:00 PM. There will be talks on "Extinctions in Geological Time," at 10:00 AM and at 3:00 PM will be "Born among Giants: the Surprising Story of the Solar System's Violent Origin."

The Museum entrance is the iron gate on the corner of Gorge and Somerset Streets in New Brunswick. Information can be gotten from William Seldon (732) 932-7243, [rwseldon@rci.rutgers.edu](mailto:rwseldon@rci.rutgers.edu).

**35 Years of News** If you noticed on the Masthead, this issue of Sidereal Times begins the 35<sup>th</sup> year of our club's newsletter. Of course the club is much older than that as its roots go back to 1962, when just a few astronomy enthusiasts met at Emerson's restaurant (no longer there) across from the current site of the Quakerbridge Mall.

Vic

**Deadline for the  
February '06 Issue  
February 3, 2006**

# Science Outreach and Exploration Update

## Science Outreach

**Rittenhouse Astronomical Society:** Philadelphia, PA, Fels Planetarium in the Franklin Institute on Jan 11, 2006 at 7:30 PM.

The club officers have issued an invitation for me to speak on “*Exploring Mars and the Search for Life*” at their next meeting. Open to the public. Dr. Kim Weaver (NASA) will be the RAS speaker on Feb 8, 2005. Website:

<http://www.rittenhouseastronomicalsociety.org/>

**Rockland Astronomy Club (RAC):** Blauvelt, NY, Sat, Feb 11, 2006 at 6 PM. The Rockland club has kindly invited me to present a space exploration lecture titled “*Mars, Saturn, Comets and Beyond!*” at their annual dinner meeting. RAC Website: <http://www.rocklandastronomy.com/>

**New Jersey Astronomical Association (NJAA):** Paul Robinson Observatory, High Bridge, NJ, Sat, Mar 25, 2006 at 8:30 PM. The NJAA has invited me to give a talk on “*Exploring Mars and the Search for Life*” and “*Mars and Saturn in 3D*”. 3D glasses will be provided. Open to the public.

Website: <http://www.njaa.org/>

**Washington Crossing State Park:** Interpretive Center, Titusville, NJ. Sun, April 2 at 1:30 PM. “A Tour of Our Solar System” will highlight the many new discoveries of our home base. Open to the public.

View my online list of Mars educational resources at:

<http://www.nassauboces.org/jason/resources.htm>

For science outreach presentations please contact me at:

Email:

*Outreach for AAAP, JPL and The Planetary Society*

## Robotic Mission Exploration Update

**Spirit and Opportunity on Mars: Two Earth Years on Mars!**

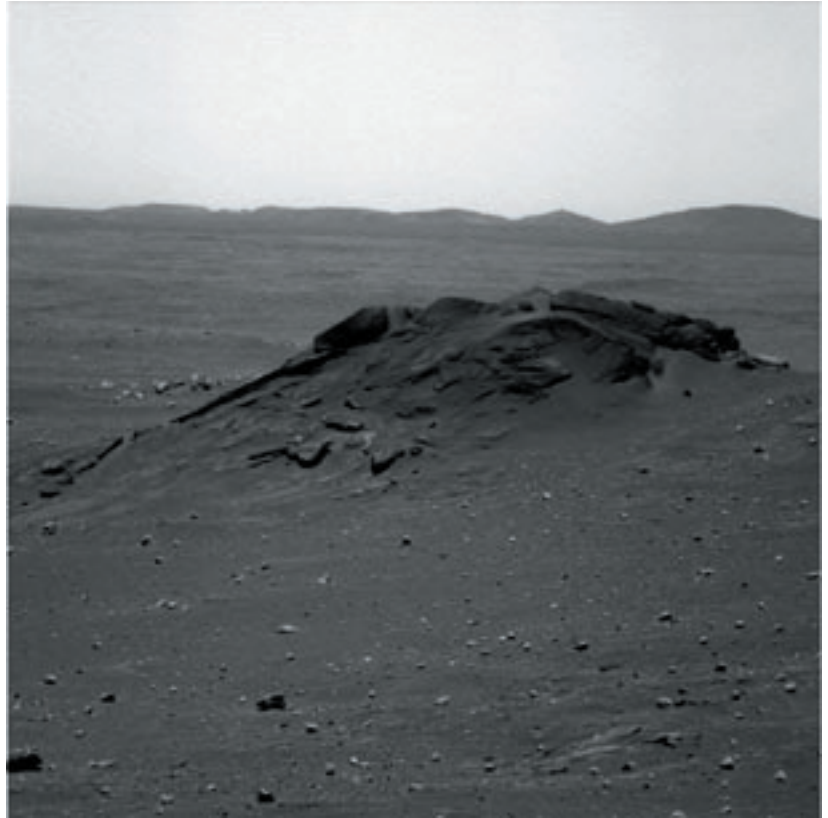
Having just celebrated a *Martian Year on Mars*, the 2 Earth-years anniversaries for the rovers will be reached on Jan 3 for Spirit and Jan 24 for Opportunity. They have traveled a combined distance of over 7½ miles and taken over 140,000 images.

On 12 Dec 2005, myself and new AAAP member Stuart Warmink were very fortunate to meet Rover Principal Investigator Steve Squyres at the Hayden Planetarium and attend his afternoon science lecture at the Astrophysics Department. We thank Steve’s host, Planetarium Director Neil deGrasse Tyson, for the opportunity to attend.

Steve told us that Spirit has so far descended over 2/3 of the way down from the summit and was exploring a giant 9 foot high rock outcrop nicknamed “*Comanche*”. From there she drove a short distance and has just entered the dark and surreal “*El Dorado*” dunefield.

With winter approaching fast, Steve said it is critically important for Spirit to keep moving and reach the sunny north facing slopes on the terrain ahead at McCool Hill in about 3 months. Spirit must be tilted at just the right angle to soak up the maximum amount of

solar energy which in turn powers the heaters required to maintain critical electronics boards operating properly. Otherwise, Spirit will not survive the harsh martian winter and Steve said she nearly



Spirit at “*Comanche*” rock inside Gusev Crater

died last winter.

On the other side of Mars, Opportunity has suffered her first major mechanical problem while roving around the rim of Erebus Crater. Steve told us that a wire has broken in the shoulder joint of the mechanical arm. He is optimistic that she can still drive safely by keeping the arm in an “elbow out” configuration and stowing it in front of but not under the solar panels. When driving resumes, Steve said that the ½ mile wide Victoria Crater is the next goal and it should afford a spectacular view.

Prof. Jim Bell, the panoramic camera leader at Cornell, has accepted my invitation to present a AAAP lecture in Fall 2006. Jim confirmed to me that Spirit has taken dramatic new astrophotography images of Phobos rising against the backdrop of the Columbia Hills. He also said that Spirit has imaged the Large Magellanic Cloud and that “at 180,000 light years, it’s a new Pancam photon distance record (intentional, at least) and perhaps the first recorded observation of an extragalactic source from the surface of another planet”.

Jim’s team has also released a movie of a Phobos “*lunar*” eclipse. View this link:

<http://photojournal.jpl.nasa.gov/catalog/PIA03611>

Rover Principal Scientist Steve Squyres and AAAP Program Chair Ken Kremer at the Hayden (12 Dec 2005, shown below)

*(Update, continued on page 4)*

(Update, continued from page 3)



Steve Squyres and Ken Kremer

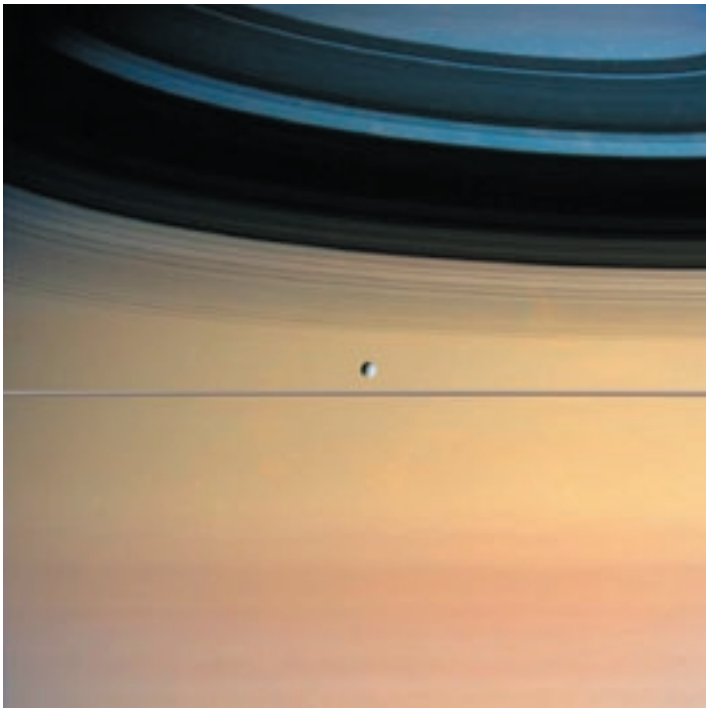
**IMAX Film "Roving Mars":** This movie detailing the amazing adventures of the rovers on the surface of Mars will premiere on Jan 27, 2006. View the trailer at:

<http://disney.go.com/disneypictures/rovingmars/index.html>

**Mars Reconnaissance Orbiter (MRO):** Is rapidly closing in on Mars with orbit insertion just 2 months away on March 10.

**Mars Global Surveyor:** Hundreds of auroras similar to the Earth's northern lights have been discovered after analyzing 6 years worth of data from the orbiter. They are apparently associated with local patches of magnetized rock since Mars currently has no global magnetic field.

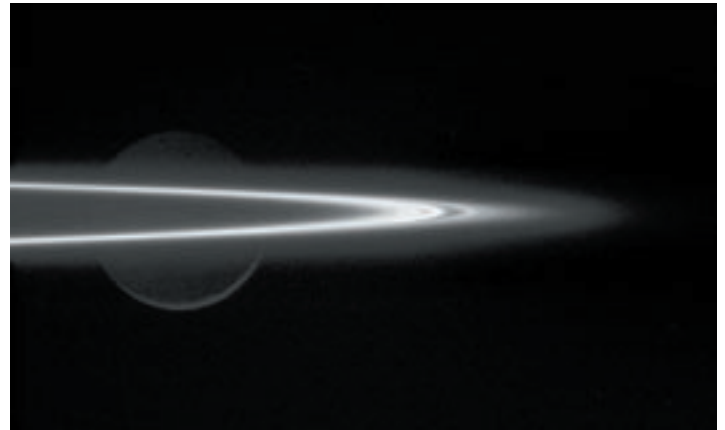
**Cassini/Huygens (NASA/ESA):** At years' end, Cassini is in a nearly equatorial orbit about Saturn and will remain there for some time gathering scientific data and a spectacular view.



Icy Dione in front of Saturn

(<http://photojournal.jpl.nasa.gov/jpeg/PIA07771.jpg>)

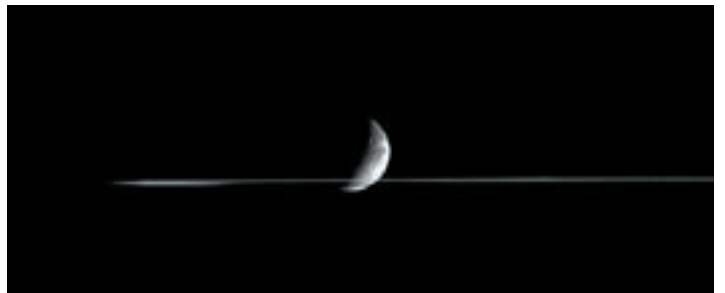
Icy Dione (700 miles wide) floats in front of the clouds and eddies of the northern hemisphere of a Saturn bedecked by ring shadows. This image was obtained from about one-third of a degree out of the ring plane.



Rhea and F ring

(<http://photojournal.jpl.nasa.gov/jpeg/PIA07655.jpg>)

Rhea (949 miles across) is in the background of a searing arc of light from Saturn's icy F ring, seen nearly edge-on.



Saturn slices Dione

(<http://photojournal.jpl.nasa.gov/jpeg/PIA07658.jpg>)

Saturn's rings appear to slice through Dione as the moon is partly occulted by the rings in this view taken from less than a tenth of a degree above the ring plane.

Just before Christmas, the science team released updated global maps of 7 of the largest icy moons and a stunning image of the Carina Nebula, 8000 light years from our solar system, at these links:

[http://ciclops.org/view\\_event.php?id=48](http://ciclops.org/view_event.php?id=48)

<http://photojournal.jpl.nasa.gov/catalog/?IDNumber=PIA07773>

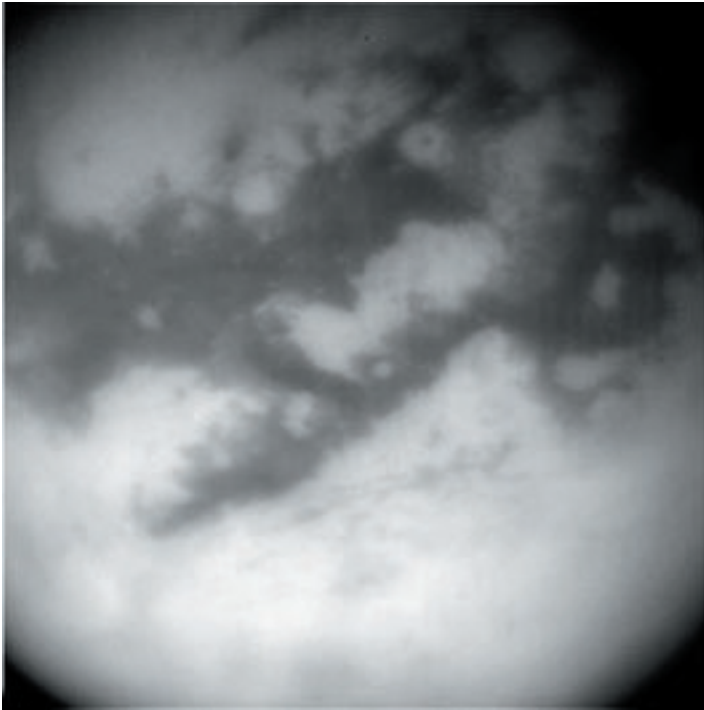
The latest Flyby of Titan (T9) occurred on 26 Dec as we go to press and a new view of the Fensal-Aztlan region below (formerly known as "the sideways H") has been sent back. The exact location of the Huygens landing site in the southern hemisphere has finally been determined to be at 192.3 degrees west, 10.3 degrees south by combining the visual and radar images (see photo on facing page).

<http://saturn.jpl.nasa.gov/multimedia/images/raw/casJPGFullS17/W00012604.jpg>

**Venus Express Orbiter (ESA):** All systems go for orbital insertion on 11 April 2006. For a chance to witness the first mission to Venus in 15 years, enter the "Postcards from Venus" art

(Update, continued on page 5)

(Update, continued from page 4)



Fensal-Aztlan region of Titan (26 Dec 2005)  
(<http://saturn.jpl.nasa.gov/multimedia/images/raw/casJPGFullS17/W00012604.jpg>)

contest jointly sponsored by *The Planetary Society* and **ESA**, by 13 Jan 2006. Details at this website:

[http://www.planetary.org/postcards\\_from\\_venus/](http://www.planetary.org/postcards_from_venus/)

**New Horizons (Pluto Flyby):** The launch window to Pluto and its moon Charon opens on 17 January 2006. A gravity assist flyby of Jupiter is scheduled for February 2007.

**Stardust:** On January 15, the sample return capsule containing particles of Comet Wild-2 and interstellar dust will plunge into the Earth's atmosphere for a landing by parachute in the Utah desert at about 5:12 AM EST.

## More News

**SOHO:** The Solar and Heliospheric Observatory celebrated its 10th anniversary of operations on 2 December 2005. The 12 instruments on SOHO have revealed the nature of the Sun's atmosphere, the links between its magnetic fields and coronal mass ejections and discovered more than 1,000 comets.

**New Ring and Moons at Uranus:** Astronomers using the Hubble Space Telescope have discovered a pair of new rings and a pair of new moon circling Uranus. The extremely faint new rings orbit at twice the diameter of the previously known ring system.

**ISS:** The Expedition 12 crew of Bill McArthur (NASA) and Valery Tokarev (RSA) celebrated Christmas aboard the station with a special cargo of holiday goodies after the successful Dec 23 docking of the unmanned Progress 12 transport vehicle.

**The Year in Pictures 2005:** The Planetary Society published their selections, at years end, of the most dramatic discoveries in planetary exploration. Included are images from Mars (including my team image of Spirit), Cassini, Deep Impact, Hayabusa and the

new object larger than Pluto (2003 UB313). Website:

[http://www.planetary.org/news/2005/1231\\_The\\_Year\\_in\\_Pictures\\_2005.html](http://www.planetary.org/news/2005/1231_The_Year_in_Pictures_2005.html)

Websites for daily updates/perspectives:

<http://marsrovers.jpl.nasa.gov/home/index.html>

[http://www.esa.int/export/SPECIALS/Mars\\_Express/index.html](http://www.esa.int/export/SPECIALS/Mars_Express/index.html)

<http://saturn.jpl.nasa.gov/home/index.cfm>

<http://www.esa.int/SPECIALS/Cassini-Huygens/>

<http://deepimpact.jpl.nasa.gov/>

<http://pluto.jhuapl.edu/index.php>

[http://www.esa.int/SPECIALS/Venus\\_Express/index.html](http://www.esa.int/SPECIALS/Venus_Express/index.html)

<http://www.planetary.org/>

Email:

Ken Kremer

## From the Program Chair

### Upcoming 2006 AAAP lecture season and events:

**January 10:** The keynote speaker will be Award-Winning Rutgers University **Professor Peter A. Rona**. Dr. Rona is a Professor of Marine Geology and Geophysics at Rutgers University and former Senior Research Geophysicist with the National Oceanic and Atmospheric Administration (NOAA). He also served as the Associate Science Director for the award winning IMAX film *"Volcanoes of the Deep Sea"* by Executive Producer James Cameron. Dr Rona is an internationally recognized pioneer in scientific exploration of the deep sea floor and led the exploration and discovery of the first black smoker hot springs utilizing cutting edge science and technology. His discovery of the living fossil Paleodictyon, one of the oldest living fossils on Earth, is featured in the IMAX film. His talk, titled *"Volcanoes of the Deep Sea: The Science Behind the IMAX Films"* will illustrate how the spectacular volcanic processes on the deep ocean floor relate to the origin of life on Earth and are connected to the search for life beyond Earth, in our Solar System and beyond. He will provide a first hand account of his expeditions to the seafloor hydrothermal vents which sustain the other worldly extreme life forms new to science in their world of perpetual darkness. Dr. Rona's international awards include the Shepard Medal for excellence in marine geology, the U.S. Department of Commerce Gold Medal for exceptional scientific contributions to the nation, and the Pettersson Bronze Medal of the Royal Swedish Academy of Sciences. He has published prolifically as the author of over 200 scientific papers, several books and numerous magazine articles for the popular media such as Scientific American and Natural History.

The film is available on DVD. Website:

[http://www.volcanoesofthedeepsea.com/index\\_flash.html](http://www.volcanoesofthedeepsea.com/index_flash.html)

For the most recent article relevant to the talk, please read this by Peter A. Rona: *"Secret Survivor"*, Natural History Magazine, 113(7), September, 2004, pages 50-55. Available online in the archive section at: <http://www.naturalhistorymag.com/>

**Field Trip to Honeybee Robotics in Manhattan:** Projected for  
(Program, continued on page 8)

Minutes of the  
General Meeting  
of the  
Amateur Astronomers Association of Princeton  
December 13, 2005

The meeting started at 8 PM with Rex Parker (Director) giving an introduction. Rob Teeter was to give the 10-minute member talk, but it was cancelled since he was delayed in getting to the meeting. 17 members attended the pre-meeting dinner at the Annex restaurant with the guest speaker Kimberly Weaver.

Ken Kremer (Program Chair) then introduced the guest speaker, Kimberly Weaver. Her talk was "New Eyes on the Universe" and includes overviews of the work done by the Spitzer Infrared and Chandra X-Ray space telescopes. The lecture hall had approximately 54 in attendance, and there was a book signing after the lecture.

The member meeting was called to order by Rex Parker (Director) at about 9:30 PM. He made a request for members to give informal 10-minute talks for future meetings.

The treasury is at \$XXXXXX after paying the club insurance premium.

Rex noted that there was an opening for a new membership chairperson. This role is to connect potential new members with the club. Rex appointed member Ryan Corrigan as the new membership chair.

Next Sidereal Times issue deadline will be December 30<sup>th</sup>. Vic requested that image submissions to Sidereal Times be of a reasonable size. The typical size of the jpegs should be 20-30K and should be submitted about a week before publication. If a larger image file is submitted, Vic will work to reduce it to a usable size for publication.

John Miller announced a new page for the website called 'Member's and their scopes'. He requests members send pictures to him for inclusion in the website.

Larry Kane (Librarian) offered to get equipment reviews for those who are considering buying new equipment. Request should be made to Larry directly. This is in addition to his ability to research astronomy topics online.

Ron has posted the 8" f1.5 Schmidt camera for sale on Astromart.com. He had taken pictures of it prior to posting the add. Many hits, but not sold yet.

Meeting adjourned at 10 PM

Submitted by,  
Ludovico D'Angelo, Secretary

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Minutes of the  
Board of Directors Meeting  
of the  
Amateur Astronomers Association of Princeton  
December 8, 2005

Director Rex Parker called meeting to order at 5:30 PM at the Tigers Tale restaurant.

Officers present were Rex Parker (Director), John Miller (Assistant Director), Ron Mittelstaedt (Treasurer), Ludovico D'Angelo

(Secretary), and Ken Kremer (Program Chair).

Other members present were: Vic Belanger, Larry Kane, Brian VanLiew, Ralph Marantino, and John Church.

The meeting met over dinner at Rex Parker's invitation. Some general items were discussed. A decision was made to sell the Schmidt camera. Ron will put the ad in the Astromart listings. Ludy D'Angelo presented a general outline of expenditures for September 2005- August 2006 as follows:

**AAAP Expenditures For 2005-06**

(Figures actual as of 12/08/2005)

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(Board, continued from page 6)

Breakeven membership: 112

Starquest expenditures are not included in the above estimates since Starquest generally pays for itself; there is no guarantee of excess donations from the raffles, and participation.

A general discussion was held about the guidelines above. The board did vote 3-2 in favor of increasing the total program chair expenditure to \$1000 for the year as a guideline. It was felt that the \$500 described above would fall short if the Program Chair should need expenditure to procure additional speakers for our meetings and for a main speaker at Starquest. Everyone thanked Ken Kremer for the great job he has done so far. The insurance policy for the club's observatories was reviewed and Ron will go ahead and pay the bill since these are usual and necessary expenses for the club. John Church indicated that there was a plan to cut some trees down at the Washington Crossing Observatory to provide a better view. This would be bid upon and discussed at a future time.

In light of the above estimated expenditures, a discussion about asking for donations at the public meetings and observatories open houses was initiated. The conclusion was that it was within the scope of the club to ask, not require, donations at our public events, just as other clubs do. Donation boxes will be developed for placement at the club's public events. Also, the possibility of nametags was mentioned so that members could identify each other at the meetings. Larry Kane said he would get this idea organized.

The meeting ended at about 8:30 PM

Submitted by,  
Ludovico D'Angelo, Secretary

### Tax Note

As a reminder to the membership, your annual dues to the AAAP are tax deductible for income tax purposes. Any donations made to the AAAP in 2005 are also tax deductible. Ludy

From the Treasurer

The Treasury balance stands at \$XXXXXX after paying the insurance premium of \$XXXX

Ron Mittlestaedt



### Claudius Ptolemaeus

Ptolemy, the great second century astronomer, worked at the Library of Alexandria. Thought to have lived between c. 100 and 178 (little is known of his actual life) authored the *Almagest* (translates to, "The Greatest"), a compilation of most of the astronomical knowledge of his time. This work spanned thirteen volumes and written in Hellenistic Greek is available in a modern, 700 page, English translation by Princeton University Press<sup>1</sup>. Conspicuously absent from this work is any mention the more scientifically correct heliocentric model proposed by Aristarchus 400 years earlier.

He is known for his geocentric model of the universe which accounted for the retrograde motion of the observable planets. He actually built upon the work of Hipparchus (160-127 BCE), who was first to model the geocentric universe but struggled with an explanation of retrograde motion. Ptolemy resolved the difficulty by the introduction of epicycles, rotating discs anchored to the crystalline spheres of the planets. He also wrote extensively in geography, optics, and the now scientifically discredited study of astrology.

Earlier Greek scholars had envisioned a the more correct heliocentric universe but it was supplanted by religious philosophies until the waning of the Inquisition and the release of Copernicus' writings after his death. Giordano Bruno and Galileo attempted to restore the heliocentric model to scholarly study earlier but were also suppressed by religious persecution in the last years of the Inquisition.

1. Ptolemy's *Almagest*, Translated and Annotated by G. J. Toomer, with a forward by Owen Gingerich. Princeton University Press, © 1998.

(Program, continued from page 5)

Jan/Feb. The limit of 17 participants has been reached with several alternates. For further info please email Bryan Hubbard or me:

**February 14: Prof. Mary Lou West** of Montclair State University will speak on "*How Things Move in Space*". She is a leader of the New Jersey Astronomical Group (NJAG).

**March: Dr. Marc Rayman** from the Jet Propulsion Lab in Pasadena, Ca. is tentatively scheduled to speak on the Deep Space 1 and DAWN missions. The lecture will be co-sponsored by the MAE Dept of Princeton U.

**April 11: Prof. Robert Nemiroff** of Michigan Technological University is the co-author of the "*Astronomy Picture of the Day*" website.

**May 9: Distinguished Prof. Michael A'Hearn** from U. Maryland is the Scientific Principal Investigator for the Deep Impact mission to Comet Temple 1.

On December 13, NASA Astronomer and author **Dr. Kimberly Weaver** gave an insightful and very highly regarded lecture titled "*New Eyes on the Universe: Observing Beyond Hubble with the Chandra and Spitzer Space Telescopes*" which she prepared especially for the AAAP. She described how NASA's newest

space based observatories are used to gather the "light" emitted in the x-ray and infrared wavelengths of the electromagnetic spectrum that cannot pierce through earth's atmosphere in order to glean a more complete picture of the cosmos.

Dr. Weaver signed over 2 dozen copies of her richly illustrated new book, "*The Violent Universe: Joyrides through the X-ray Cosmos*" after the lecture.

Following her AAAP lecture, Kim was invited to speak at the Rittenhouse Astronomical Society on Feb, 8, 2006, which meets in the Fels Planetarium at the Franklin Institute in Philadelphia. Website info:

<http://www.rittenhouseastronomicalsociety.org/>

#### Upcoming for the 2006/2007 Season

**Fall 2006: Professor Jim Bell** of Cornell University, designed and operates the high resolution color panoramic camera for the Mars Exploration Rover Mission. He is also an investigator for Hubble, NEAR and Mars Reconnaissance Orbiter.

Please send me your suggestions for speakers, with contact/topic information.

Email:

Ken Kremer

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

January 2006

Amateur Astronomers'  
Association of Princeton  
PO Box 2017  
Princeton, NJ 08543