

SIDEREAL TIMES

The Official Publication of the
Amateur Astronomers Association of Princeton

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From the Director

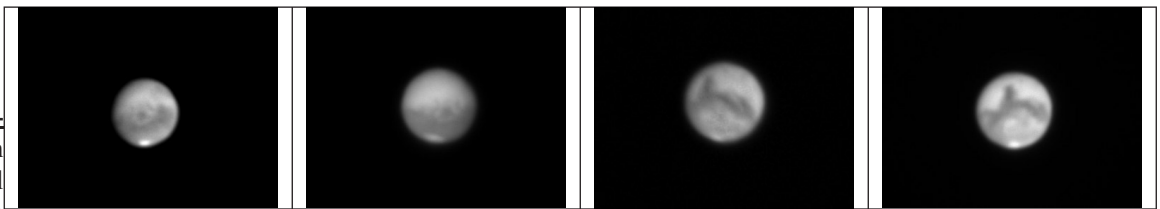
October 11 AAAP Meeting.

The guest lecture on Tuesday, October 11 will continue the innovative space hardware theme being developed by Program Chair Ken Kremer. The renowned aerospace engineering writer **Craig Covault**, senior editor and writer for *Aviation Week and Space Technology Magazine*, will present "**Science and Secrets: Capers and Misadventures in Global Aerospace Coverage**". As a leading figure in the aerospace technology journalism field, Craig has won several Aerospace Journalist-of-the-Year citations, including the 2004 Airbus "Decade of Excellence" Award for his coverage of spaceflight and aviation technology advances. For more information see elsewhere in this issue and the AAAP website.

Were you intrigued by last month's lecture on the **HoneyBee Robotics geology technologies being developing for NASA's planetary probes?** If the answer is "yes", then you may have a rare opportunity to join a private tour for AAAP members being arranged with Stephen Gorevan of HoneyBee Robotics of their facilities in Manhattan. We are aiming for early this winter (date TBA). Please let Ken Kremer or me know if you are interested in joining this proposed field trip.

Mars Opposition Events with AAAP. The AAAP Observatory at Washington Crossing will be an active center for observing Mars as it approaches Opposition through the month of October. Mars observing in these upcoming weeks will be challenging, but will be about as good as it ever gets, as the red planet will attain a higher elevation (decl +16 deg) though smaller angular diameter (20 arc-sec) than in the 2003 opposition (see astrophotos below from Sept 2003). In recognition of this very special event, our club will hold the following events:

- **Oct 7, 14, 21, 28 and Nov 4 (Friday nights) from sunset to around midnight:** open house hosted by AAAP Keyholders



Different faces of Mars, imaged during the Sept 2003 opposition. RAP photos, using ST-10XME CCD camera with Takahashi FS-128

for club members and public at the WC Observatory, with a focus on Mars viewing plus other deep sky phenomena. Bring your scopes too!

- **Oct 22 (Sat afternoon and evening) from 3:00 pm till midnight:** AAAP Annual Picnic at WC Park followed by viewing at the Observatory. All members and family/guests are welcome to join in this annual get-together. Please let Larry Smith know if you are planning to come (e-mail at lcs1@patmedia.net or call at 908-874-3552)... or simply show up, the picnic will be next to the Interpretive Center just past our observatory at the Park.

Annual Membership Dues (\$40) Are Payable Now
– all members please mail dues to club P.O. Box, or bring check to October meeting

AAAP's Observatory at UACNJ – Jenny Jump State Forest. How many of you know that our club owns and operates a roll-off roof custom-built observatory at the United Astronomy Clubs of New Jersey (UACNJ) observatory cluster at Jenny Jump State Forest? This excellent facility houses the almost-famous Simpson 12.5 inch Newtonian reflector that once was mounted at Washington Crossing. As a AAAP member you can participate in UACNJ events, and with some help by the AAAP Keyholders, you could learn to operate this excellent telescope under some of the darkest skies to be found in the state. Please contact Ron Mittelstaedt or me (see S.T. masthead) for more information on our observatory and the UACNJ.

Simpson Observatory (609) 737-2575

Dark Skies! -- Rex

Science Outreach and Exploration Update

Upcoming Science Outreach

“World Space Week” at The Franklin Institute Science Museum: Philadelphia, Pa, Oct 1, 2005. Learn about astronomy and space exploration at this exciting event. Visit my Mars/Saturn “mission booth” from 10 AM to 3 PM. At 11:30 AM and 12:30 PM, I will present a lecture titled *“Exploring Mars and the Search for Life”* and display the scale model of the Mars Rover Science Drill.

New Jersey Astronomical Group (NJAG): Montclair, NJ. Our sister club has issued an invitation to me to give a Mars Rover presentation this fall. Watch for details.

Rockland Astronomy Club: Orangetown, NY, Feb 11, 2006. The Rockland club has kindly invited me to present a lecture at their annual dinner meeting.

Future presentations at planetariums, astronomy clubs and the Washington Crossing Nature Center are in the planning stages.

Please contact me for schools, museums or community groups interested in science outreach presentations.

Email: ken@princetonastronomy.org

Robotic Mission Exploration Update

Spirit and Opportunity on Mars: Both Rovers arrive at Rich Scientific Targets after Over 1200 total Sols of Exploration!!! Spirit has climbed to the summit of Husband Hill and Opportunity has journeyed to the edge of Erebus Crater.

Principal Investigator Steve Squyres and the mission teams are now faced with an unimaginably delightful quandary; Simultaneous decisions for both rovers on *“Which way to go?”* And this is after nearly 2 years of intensive and exciting science operations. Spirit is traversing around the summit of Husband Hill since arriving there in late August. And Opportunity has finally reached Erebus crater in late September as this goes to press. At 984 feet wide, bedrock rich Erebus crater is nearly twice as large as the scientifically bountiful Endurance crater, which Opportunity departed last January. Along the way, she encountered her heat shield, the first meteorite found on the surface of another planet, and then the vast sea of sand in which she was trapped for over 1 month. When the science studies of Erebus are complete, Opportunity will probably head for a 4th and enormous Crater, nicknamed *“Victoria”*. She has driven over 3.7 miles so far.

Spirit has investigated numerous scientific targets while surveying the summit of Husband Hill, which rises 351 feet above the landing site elevation, and 269 feet above the base of the surrounding plains. This is roughly the height of the Statue of Liberty.

Spirit is now collecting a series of high resolution panoramas. These include the beautiful windblown drift nicknamed *“Cliffhanger”*, overlooking the *“Tennessee Valley”*. 3D stereo images will then be created while the team considers the best approach downhill to an attractive target nicknamed *“Home Plate”*. The downward path is steep and will require very careful planning, but is filled with lots of *“tasty geology”* as Steve Squyres wrote on his website.

Both rovers have also been doing a lot of nighttime astronomy watching due to the power boost resulting from the dust devils

cleaning off the solar panels. In essence, Spirit and Opportunity also function as astronomical observatories on the surface of another planet, Mars !! Be sure to check the rover website for a movie showing the march of Phobos and Deimos across the martian night sky; *“Two Moon Passing in the Night”* which I showed at our September club meeting.

Looking for meteor showers is also a high priority in the near term before the sun gets lower in the sky and the sun distance increases, causing a drop in solar power output. According to Jim Bell, lead scientist for the Panoramic Camera system, the team will also try to obtain lunar eclipse images of Phobos, moving into and out of the shadow of Mars.

Incredibly, Spirit has just about as much power today, 965 watt-hours, as the day it landed. This is way up from a low of less than half that.

The martian winds have been so intense, that large quantities of dust are being blown back into the newly drilled holes created by the “RAT”. The RAT has far exceeded expectations, with over 111 drilling and brushing operations vs. the prelaunch specification of just 6. And we were fortunate in September to have the “RAT” designer present an outstanding lecture at the AAAP season opener in September. Steve Gorevan, Mission Scientist and Chairman of Honeybee Robotics in Manhattan, told the story of how it came to be, the results so far and new missions upcoming. He also told us how sacred rubble from The World Trade Center, donated by Mayor Guiliani, was machined into a flat shield located on the “RAT’s” of both Spirit and Opportunity. The American flag was then placed on top of the shield, and is visible in numerous pictures from Mars!!

Steve also has invited us to visit his shop in Manhattan to see what he is building for NASA for the 2009 Mars Science Lab rover mission. Information will be published as the time approaches around Dec/Jan.

Cassini/Huygens (NASA/ESA): Radar images from the most recent Titan flyby (T7) on Sep 7, revealed dramatic evidence for a 1000 mile long shoreline in the southern hemisphere which divides bright and dark regions and is cut by deep channels and bays. This is the most convincing data so far for the presence of lakes and seas filled with liquids or rainfall on Titan today or the very recent past. The next radar pass occurs on Oct 26 and will cover the area of the Huygens landing probe, located near to the equator.

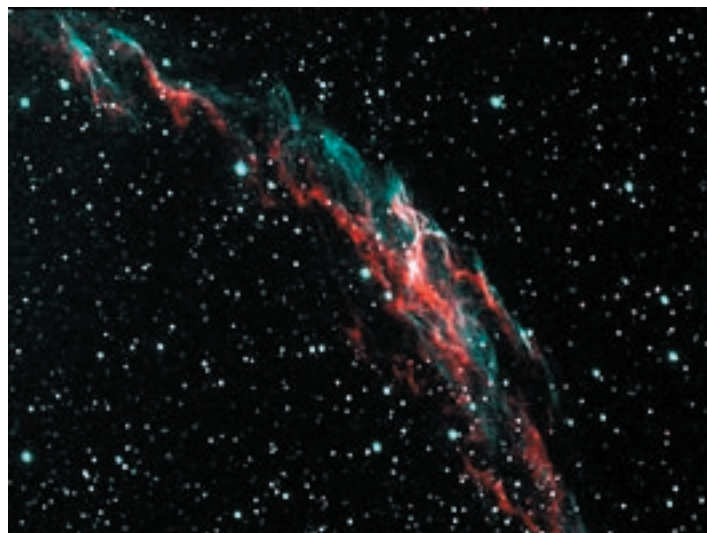
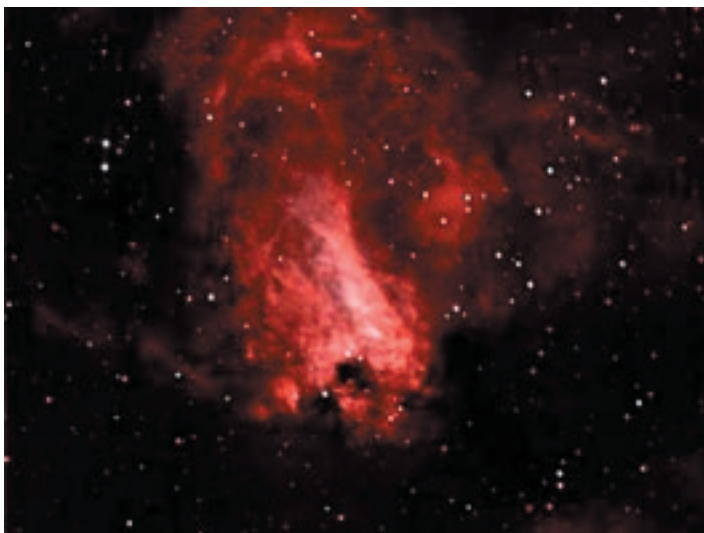
The tiny moon Enceladus is a spectacular highlight of the mission, with growing importance in the search for life. Recent discoveries include the detection of simple organics in the “tiger stripes” at the hot spots near to the south pole and the detection of a thin atmosphere of water vapor arising from present day geophysical venting of subsurface liquid water.

On Sep 24 and 26, there was a doubleheader of very close flyby’s of the moons Tethys (930 miles distant) and Hyperion (314 miles distant) as this report was being written (see details next month). The previous closest approach to Hyperion was 100,000 miles. At just 102 miles wide, Hyperion is the largest irregularly shaped moon in the solar system. With gravity too weak to crush it into a sphere, it looks like a sponge with a very low density of 0.6.

Cassini has finally captured images of the intriguing spokes on Saturn’s rings, first detected by the Voyager spacecraft 25 years

(Update, continued on page 6)

Narrow Band Imaging with an Achromat



Now I would love to have a large aperture, short focal length APO for imaging wide DSOs but it's not a perfect world. So I have to work with what I do have and can afford. In trying to get a wide field for visual use I picked up an ST120 F/5 scope made by Orion. It has 120mm (4.7") aperture and at F/5 it is relatively fast, meaning a short focal length of 600mm. I gave it a try imaging through it and found the brighter stars always bloated. So I tried putting a narrow band filter on the front of the camera. Once I did this the stars became much tighter and I have had good luck imaging nebulas from my driveway here in central NJ. I have two

image quality filters, an H α and an OIII both 14nm wide. By using these filters the light pollution from ground lights and even the sky glow caused by the moon can be filtered out of the images. I typically image with the H α for my luminance and red channel and the OIII for the green and blue channel to make up a final LRGB image. Attached are a couple of objects I've taken by this method (M17 and NGC6992). Now when are they going to come up with a 10 inch F/2??????????

Brian VanLiew

Minutes of the general meeting Amateur Astronomers Association of Princeton September 13, 2005

Director Rex Parker called meeting to order at 8 PM.

Rex Parker opened with general comments and mentioned opportunities to view Mars in the next month or two and also suggested special viewing public nights. He then gave the floor over to Ken Kremer who introduced the guest speaker for the night.

Guest speaker Stephen Gorevan of Honeybee Robotics spoke on the topic "Mars Rovers – Drilling for Science". Because of time constraints, he was not able to stay after his lecture, but did invite the AAAP to come to New York and visit his company and view first hand some of the technology they are working on.

After a brief intermission, the member meeting started with Rex revisiting the idea of Mars viewing nights. There will be an extra one or two nights scheduled in November for Mars viewing. Gene Ramsey indicated that the last two Friday nights in October and the first Friday in November would be a good time for Mars viewing. Much discussion on the expectation of the public as to what Mars will look like in the scopes. Mars is a visually difficult object to see. A public outreach effort will be made along those lines and one night may be declared "Mega Mars Night".

Ideas for Jenny Jump site were discussed. Possible club star party may be organized in the next month and a half. Rex indicated that there should be an effort to re-invigorate club participation in the observatory we have there and in the site. An idea to have the club picnic there was put forward; the consensus was that the picnic

should be at Washington Crossing. But other activities could be scheduled at Jenny Jump like a Mars viewing night there. October 30th or November 5th are possible dates.

Ron Mittelstaedt and Ralph Marantino will be at Jenny Jump October 30th. Anyone interested in being trained on the 12.5-inch reflector at our observatory there are welcome as that will be the last time that Ron and Ralph intend to be associated with the Jenny Jump facility.

September 24th is the annual Astronomy Symposium and public night at UACNJ. UACNJ has public nights every Saturday. Saturday November 5th is the last public night at Jenny Jump under UACNJ for the year.

Don Monticello reported that about 6 members had signed up for the member star party at The Montclair School of Conservation near Stokes State Forest. The event is \$7.00 per person per night. We will send out a reminder email to the membership for those who may be interested in signing up. It will be September 30 to October 2, 2005. There are restaurants in the area, no food will be provided. If anyone wants to stay in a motel, there are some near the site.

There was a discussion about the Sidereal Times and the effort to go to the email version. This would save the club in printing and mailing costs. Members who want to have the Sidereal Times sent by email should contact Ludy D'Angelo, Secretary at Dronetone@aol.com. Members who want the paper version will continue to receive it.

The deadline for Sidereal Times submissions for the October

(Minutes, continued on page 4)

(Minutes, continued from page 3)

edition is September 30th.

Larry Kane, Librarian/archivist, has acquired the Sky and Telescope magazine online archive for the club. He is ready to look up articles for anyone who is interested in the subject matter it offers. Request an article by contacting Larry.

Recognition is given again to Brian VanLiew for repairing the columns and the last work party that installed the drainage pipe and to Ralph Marantino for donating a finder scope for the Simpson Observatory. John Church scraped and painted the rails. Gene Ramsey thanked everyone for all their efforts. The roof leaking problem is still present and the proposal is to have a work party on October 15th to replace the back roof. John Church and Gene Ramsey are going to cut down some saplings and clear some ground in the next few days.

Brian VanLiew reported that there are occurrences on the C-14 where there is a noticeable coma when pointing the scope at certain times. The possibility is that there is some movement in the primary mirror that may be causing this. Rex and Ron said that it might be the grease that has decayed and need to be replaced. Discussion ensued as to whether it should be shipped out or if there was enough expertise to do it ourselves. The determination was that if anything were to be done, it would happen after the season is over, sometime near the end of November. Gene asked if there was a tech manual available for the C-14, he was answered that there are procedures on the internet for it.

Weekend at Ernie's

On Saturday, Sept 3rd, Ralph and I headed up to Ernie Rossi's country home in the Catskills Mountains. Ralph had attended Ernie's star parties twice before, this would be my first. When we arrived there was already eight other astronomers from various clubs which Ernie is associated with. At the end of the month Ernie will close on this property and his residence in Long Valley and move to Florida. He had owned his Catskills retreat for five years.

Ralph and I agreed that because of the gas prices we would travel in his Toyota Corolla and only take a 10" open truss Dobsonian recently given to him by Barlow Bob. As you may know, Barlow Bob is strictly a solar observer and really had no use for the Dobsonian he won at the Northeast Astronomy Forum a few years ago.

The base of the Dob sat nicely in the left rear seat with the passenger seat belt around it. The secondary cage fits well in a drum case and fit in the trunk. I didn't trust the digital setting circles on the dob so I brought all my star charts and my 20x60 binoculars. After assembling the dob, this fear proved correct, the digital setting circles would not perform and I had to draw on my past experience of star-hopping to find the deep sky objects.

The scope produced some very sharp deep sky images, even before we performed our first collimation and the mirror also needed cleaning.

We observed the more familiar objects while the sky darkened, M13, M5, M51, M27, etc. Even the International Space Station passed overhead. Around 10:30 the sky was dark enough for some serious observing. We were able to view the entire Vail Nebula without a filter. The Vail was also observed in my 20x60

Brian will also be setting up Keyholder training schedules and will post them in the Sidereal Times. He is also asking for training volunteers to help in this effort (i.e., other keyholders).

Picnic: After some discussion, The AAAP picnic will be on Saturday October 22nd at 3PM. Larry Smith will organize the picnic; anyone who wants to help should contact Larry Smith. Gene will check with the nature center at Washington Crossing to make sure the area is available. Communication and an email will be sent out to the membership.

John Church and Don Monticello brought up the subject of having a spending plan for the club. They indicated that this was important to the club in order to try and anticipate the spending needs. Rex generally agreed and asked for ideas on the subject. It was mentioned to Rex that he was within his power as director to create and appoint a finance committee. Rex appointed John Church and Don Monticello as co-chairpersons of the finance/budget committee. They will assemble information from Ron and other chairpersons to form a budget to present a provisional budget to the Board of Directors.

There was a request for volunteer telescopes on September 24, 2005 for a star party for a Girl Scout troop. Brian asked for volunteers for this.

The treasurer reports that there is \$XXXX.XX in the treasury.

Meeting was adjourned at 10:10 PM

Submitted By:

Ludovico D'Angelo, Secretary

binoculars. Pinpoint images of many globular clusters offered proof that our first attempt at collimating was a success.

Ernie's 25" Obsession was a treat as we saw many dim, less observed objects. One, being NGC 253. This galaxy stretches across the entire eyepiece field and at 7th magnitude, the detail was amazing.

Another was NGC 891. This galaxy, like NGC 253, also stretched across the eyepiece field, very impressive. I'm not going to list all the objects we observed, but this marathon lasted into the wee hours of the morning.

I am very fortunate to be able to attend many star parties at dark sky sites. These are the things I can finally do now that my kids are grown. I have found that there is a small percentage of participants in this hobby who visits areas that allow one the view deep sky through the eyepiece. The rest don't know what they are missing. Areas with 6, 6.5 and more-rare, 7 magnitude skies are not easy to find in the East.

Ernie calculated that the skies were about a six out of ten on Sunday night where skies can get as good as mag 6 to 6.5. There was moisture in the sky and on many occasions we had to use a hair dryer to remove the dew from the Telrad and eyepiece. The skies were not quite as dark as Cherry Springs, but the accommodations and social aspects could not be equal. Ernie's place in the Catskills will be surly missed by all who have observed from it.

The only regret I have about our weekend is that I just should have taken my van and my C11.

I did pick up one tip from my visit. A fellow observer has had the same problem many of us have been plagued with; Rex knows what
(Ernie's, continued on page 5)

(Ernie's, continued from page 4)

I'm talking about. It is the digital setting circle control box. I used a nine volt battery, but the LED read out really saps the power. An alkaline battery lasts about eight hours, a lithium, about 15 hours. The initial set up takes about ten minutes. So when the battery goes dead the initial set-up procedure has to be done again.

Joe, a member of NJAA, was going to wire a nine volt power transformer directly to the DSC box. I thought about this when I got home and found that I have a power supply for an old transistor radio. The transformer has an input of 120 volts and a 9 volt output. The amperage is low, around 800 milliamps, 200 milliamps short of a full amp, but good enough for what I need. I had a spare nine volt battery connector and cut off the DC plug of the transformer and soldered on the nine volt connector. Great idea! Thanks Joe.

Now as long as no one pulls the plug, I no longer have to worry about the DSC inadvertently shutting down.

Ron Mittlestaedt

A Weekend at Stokes

George Walker came up from W. VA to attend and we arrived at Stokes around 5:30pm. Ralph, Bill Fesico, Brian, Rob Teeter, Keith Jennings and John Thomas and his wife were present. Simon Lee, Don Monticello and Jane showed up later. The Friday night sky proved to be very clear and transparent though there was considerable dew. My judgment object, NGC 6207, a 12.2 mag galaxy near M13, was very visible at 9pm. I figure when I can see detail in this object, it's going to be a good night. Rob Teeter was so accommodating with his scope that Jane or Simon didn't take their scopes out of their cars. Just two-inches smaller, Bill Fesico's Obsession 18" was showing some fine views as well. The Swan Nebula, M17 with a OIII filter was very detailed.

I was very fortunate on this night to view the Helix Nubula, NGC7293. In a field of large Dobs my C11 felt a bit inadequate, but with a OIII filter, I was able to see it fill the entire field of view of my eyepiece. Most observers stayed out until about 2am before retiring to the bunkhouse.

The next morning we drove to Milford, PA for breakfast and a walk around this historic town that was considered the frontier during the French and Indian War. On return to the site I viewed some of Brian Van Liew's images of Mars. They turned out quite well.

That night we dined on rib-eye steak sandwiches before the night's viewing commenced. Saturday didn't prove to be as transparent as Friday, but Ludy showed up after dark and there was socializing and observing.

George and I waited for our equipment to dry out from the dew, so we went to the Jumboland Diner for breakfast. On return we packed our equipment and headed for home.

Ron Mittlestaedt

Deadline for the
November Issue of the
Sidereal Times
Friday, October 28, 2005

AAAP Picnic

The annual, glorious AAAP Picnic will be held on Saturday, October 22, 2005 starting at 3:00 PM at Washington Crossing Park at the Nature Center pavillion. Following the picnic, we will have observing at the Simpson Observatory. I will be purchasing hot dogs, hamburgers, potato and macaroni salad, coleslaw, paper goods and utensils, drinks, condiments etc. As in the past, if you could please bring a side dish to throw into the pot like a tossed salad, veggies, baked beans or a dessert, it would be greatly appreciated. Home made dishes prepared with love are heavenly. Please email me at lcs1@patmedia.net or call at 908-874-3552 if you are coming so that I can get a count to buy the food. Also, please let me know your planned side dish so that we don't possibly get too many of the same thing. Would the folks who brought the gas grills last year (Rex and Gene?), please bring them again and let me know if you can. If you have any suggestions as to items that you would like or ways to improve the picnic, please let me know. I also need a volunteer to bring the ice. If you have a large cooler that we could use, I would appreciate it (let me know).

Thanks, Larry

Key-holder Training This Fall

This fall I will be starting up the training sessions for those who are interested in getting trained on using the Simpson Observatory. To join in this experience, you need to be an active AAAP member for at least six months. If interested contact me, brian@princetonastronomy.org and I'll put you on the trainee list.

I also will need experienced key-holders to run these sessions. If interested contact me.

Here is the schedule for key-holder training for 2005,

Oct. 8	Nov. 19
Oct. 22	Dec. 10
Nov. 12	Dec. 17

We will meet at the Rte579 gate at 7pm. We will **NOT** be holding the session **ONLY** if it is raining/snowing or there is a lack of interest on a particular date. Please dress appropriately for the weather.

Brian Van Liew
Simpson Observatory CoChair

AAAP Jackets

Since the nights will be getting cooler and your old jacket may not be in the best shape why not get a new AAAP jacket. They come in various sizes and colors (the logo is always the same just the color of the jacket is your choice). If you are interested in getting a jacket see me for color selection. I also can get long sleeved denim shirts with the logo. Last year the cost for a jacket was \$65 and \$35 for the shirt. I believe they will still be the same price but I will check with the shop where I get these through.

Brian Van Liew

(Update, continued from page 2)

ago. Their origin remains a mystery.

Deep Impact: The results so far indicate that the surface of the comet is quite fluffy and powdery like fresh snowfall or talcum powder. With a density of just 0.6, Comet Temple 1 is believed to be porous, perhaps 50-70% empty space. Water and simple organics have been detected so far in the spectra, with further analysis in progress. Professor Mike A'Hearn's team has already submitted a proposal to NASA for a follow on mission to Comet Boethin.

Mars Reconnaissance Orbiter (MRO): The cameras, main engine, navigation system and antennas were all successfully tested in the past few weeks during the 7 month cruise to Mars.

Mars Global Surveyor: Celebrated its 8th anniversary in Mars orbit with continued discoveries. The orbiter remains healthy and may continue to operate another 10 years. Just released photos show the formation of new gullies in martian sand dunes that did not exist just 3 years ago, proving that Mars is an active planet.

Mars Express (ESA): The mission was extended by 1 martian year until November 2007, to build on its legacy of scientific achievement. Perhaps the most important finding so far is that volcanic and glacial process have occurred much more recently than expected. The spacecraft has detected low levels of methane, and possibly formaldehyde, which could be indicators of current volcanic or biologic processes. The longer mission will permit follow up investigation of these curious findings, the collection of more 3D high resolution color images of the surface and a continued search for subsurface water with the recently activated MARSIS radar experiment.

ESA has begun planning for the EXO-Mars rover mission, scheduled for launch in 2011 and arrival in 2013.

New Horizons (Pluto Flyby): The 1000 pound spacecraft has safely arrived at the Kennedy Space Center after being shipped from the NASA Goddard Spaceflight Center. It will undergo final testing and integration with the Atlas V booster rocket for the next few months. The launch window opens on 11 January 2006 for a 10 year, 4 billion mile journey to Pluto, its moon Charon and then on to the Kuiper belt. A new color map of Pluto, based on Hubble Telescope images, has just been released and shows areas of possible methane frost. The Planetary Society played an active role in obtaining congressional funding for this mission, which also carries a disk with the names of all society members.

Messenger (Mercury Orbiter): Stunning new photos from the Aug 2 gravity assist flyby and a dramatic earth departure movie animation are available at this link: http://messenger.jhuapl.edu/the_mission/flyby_movie.html

Voyager 1: 25 years into its mission, three new scientific surprises have been discovered by this hearty spacecraft. After passing the termination shock, the speed of the solar wind is less than expected and the speed of the cosmic rays is higher than expected. The details are reported in 4 papers in the Sep 23 issue of SCIENCE.

Venus Express Orbiter (ESA): Less than 1 month remains before the October 26 launch from the Baikonur Cosmodrome and the main electrical testing has been completed.

SMART-1 (ESA): The Lunar science mission of this orbiter has been extended through an ingenious plan that allows the full

utilization of all remaining xenon gas propellant for the ion engine. The spacecraft was raised to its maximum orbit in September. Thereafter, natural orbital decay should cause it to crash into the moon around August 2006.

Hayabusa (Japan): After a string of disappointments, the Japanese space agency has scored a major success when the Hayabusa spacecraft had a successful rendezvous with the near earth asteroid Itokawa. It is now hovering about 12 miles above the surface of this oddly shaped object. The plan over the next few months is to move in even closer, deploy a mini-lander nicknamed "Minerva", collect surface materials and then return the first ever asteroid particles to earth in 2007.

SOHO (ESA/NASA): The spacecraft has now discovered over 1000 "sun-grazing" comets after 10 years of operation. Many of these comets were actually found by amateur astronomers, searching through SOHO coronagraph images on the internet. SOHO has completely revolutionized our understanding of the sun and is responsible for the discovery of nearly half of all recorded comets. See this website for details and movies: http://www.esa.int/esaCP/SEMCA3908BE_index_0.html

More News

Moon/Mars Initiative: NASA has officially announced plans for returning man to the moon by 2018. Two new shuttle derived launchers will be developed, separating the cargo and crew booster requirements. The heavy lunar lift vehicle is derived from parts of the space shuttle system which include the main engines, external tank and solid rocket boosters. The new Crew Exploration Vehicle (CEV) would be an enlarged Apollo spacecraft and launched atop a modified shuttle solid rocket booster. First flight of the CEV is scheduled for 2012 to the International Space Station, with the Space Shuttle due to be retired by 2010.

Hubble Space Telescope: Hubble is now operating with just two gyroscopes. 1 of 3 operational gyros was intentionally shut down in a bid to extend the orbital lifetime until mid-2008, giving more time for NASA to prepare a possible servicing mission by the Space Shuttle.

Science Documentaries: Two new films are highly recommended: "*March of the Penguins*" and "*Magnificent Desolation: Walking on the Moon*" (IMAX 3D).

Ceres: The largest of the known asteroids may qualify as a "mini planet". Recent Hubble observations reveal that this nearly round body may have large quantities of pure subsurface water ice and a rocky interior. NASA plans to launch the DAWN mission in mid 2006 to orbit Ceres and later Vesta.

Large Synoptic Survey Telescope (LSST): The National Science Foundation has awarded contracts to begin construction of this 8.4 meter telescope by 2009. Due for completion by 2012, this world-class, ground based telescope will have the ability to image the entire visible night sky every three nights.

Websites for daily updates/perspectives:

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

http://www.esa.int/export/SPECIALS/Mars_Express/index.html

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

(Update, continued on page 7)

(Update, continued from page 6)

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

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

<http://messenger.jhuapl.edu/index.html>

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

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

Outreach for AAAP, JPL and The Planetary Society

Ken Kremer

From the Program Chair

For a summary of the exciting Mars Rover lecture by Steve Gorevan on September 13, please see my write-up in the Exploration Update article elsewhere in this newsletter.

The upcoming lecture season currently features:

The October 11 keynote speaker will be the 2005 Aerospace Journalist of the Year **Craig Covault**, Senior Editor and Cape Canaveral Bureau Chief of Aviation Week & Space Technology Magazine. His talk, titled: "Science & Secrets: Capers and Misadventures in Global Aerospace Coverage," will present the behind the scenes human drama of robotic missions exploring the solar system and manned missions from Apollo to the Space Shuttle. He has written some 2,500 articles on global space operations, science and national security issues during his thirty-two year tenure with the magazine.

On November 8, the speaker will be **Dr. Mario Livio**: Senior Scientist at the Space Telescope Science Institute. His topic is Hubble's Top 10 Scientific Discoveries.

On December 13, the speaker will be **Dr. Kimberly Weaver**: X-Ray astronomer at NASA Goddard Spaceflight Center and author of a newly published book, "The Violent Universe". She is also the Program Scientist for the Spitzer Space Telescope and currently based at NASA HQ.

Please send me your suggestions for speakers, with contact/topic information, and consider volunteering to help on the program committee.

Email: ken@princetonastronomy.org

Ken Kremer

Letters to the Editor

BREAKING NEWS: Newly Discovered 10th PLANET has a newly discovered MOON!!!. Cal Tech Astronomer Michael Brown and his team have just reported the discovery of a moon orbiting the proposed 10th planet, currently designated 2003 UB 313. It was spotted on Sept 10, using the 10 meter Keck Telescope in Hawaii and has an estimated diameter of 155 miles. The planet (which is larger than Pluto) and moon have the nicknames Xena and Gabriella, while the IAU considers formal names and classifications.

BLAST OFF: Princeton area scientist/space tourist Gregory Olsen has just been launched into space on Oct 1 onboard the Russian Soyuz TMA-7 capsule and is heading for the International Space Station as part of a 3 man crew.

Ken Kremer

Renewal Month

October is AAAP membership renewal month! All AAAP dues are to be renewed in October, for annual membership.

For many years, the AAAP has offered members what we hope is some of the finest astronomy value for their dollar. Guest speakers including Nobel laureate Russell Hulse, outstanding theorists such as Paul Steinhardt and J. Richard Gott, renowned astroimager Rob Gendler and the legendary Freeman Dyson (also a AAAP member!) have all been guest speakers for our meetings.

We offer two observatories, a sensational annual star party, an annual AstroPicnic, a well-stocked library and much more. Please be sure to renew your membership today! Dues are \$40 per annum.

Mail your membership renewal check (made out to the "AAAP" or complete club name) to P.O. Box 2017, Princeton, NJ 08543. Questions? Contact Jane Lanahan, our Membership Chair at <mailto:lanahan@princetonastronomy.org>. And thank you for your continued participation and support.

The AAAP Board

Rex Parker – Director, John Miller - Assistant Director, Ken Kremer - Program Chair, Ludy D'Angelo – Secretary, and Ron Mittelstaedt - Treasurer

AAAP, Inc.
PO Box 2017
Princeton, NJ 08543

From the Treasurer

The Treasury stands at \$ XXXX.XX. I will have the Astronomy calendars for sale at the next meeting at \$7.

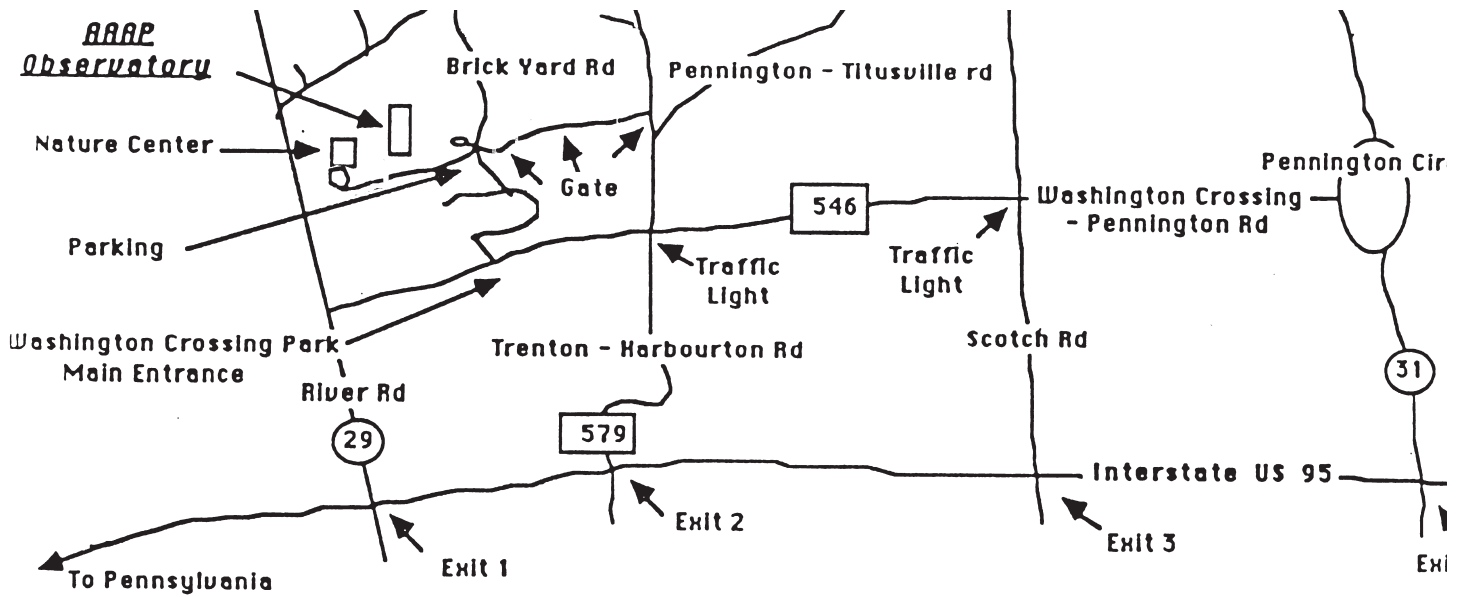
Ron Mittelstaedt

Letters to the Editor

Deep Impact: The results so far indicate that the surface of the comet is quite fluffy and powdery like fresh snowfall or talcum powder. Professor Mike A'Hearn (Principal Investigator) told me by telephone that water and some simple organics (HCN, CH₃CN, H₂S) have so far been detected in the spectra, with further analysis in progress. He also said that the density is just 0.6, and that Comet Temple 1 is believed to be porous, perhaps 50-70% or more empty space. More results will be published in a special issue of SCIENCE on 15 Oct, comprising of 8 research papers, he said. Professor A'Hearn's team has already submitted a proposal to NASA for a follow on mission to Comet Boethin.

Ken Kremer

For voluntary email delivery of the Sidereal Times send your request to Ludy D'Angelo:
Dronetone@aol.com
(See Editor's Column Above)



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.

See us on the Web: www.princetonastronomy.org

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