

# SIDEREAL TIMES

*The Official Publication of the  
Amateur Astronomers Association of Princeton*

**Director**

*Ludy D'Angelo*

**Treasurer**

*Michael Mitrano*

**Program Chairman**

*John Church*

**Assistant Director**

*Jeff Bernardis*

**Secretary**

*Larry Kane*

**Editors**

*Bryan Hubbard, Ira Polans, & Michael Wright*

Volume 40

January 2011

Number 1

## From the Director

Happy New Year! To everyone in AAAP, I am wishing you a grand new year and clear skies! I hope everyone has dug out of the great storm of 2010. I was in Minnesota where there was already at least 20 inches on the ground (or more) and everyone didn't seem to mind at all. While there I encountered a teacher who is part of my wife's family. We got to discuss astronomy (my favorite subject!). During our discussions he mentioned that his school had an observatory. I asked how much it was being used and he said it was not currently being used. I asked why and he essentially said that no one knows how to use the equipment and there was no formal program or person to run the works. So apparently it had not been used for many years. The school has a science program that covers astronomy, but no resources in order to have the type of first hand experience with a telescope (at least at the school). I hear this kind of story every so often and I am sorry to hear them. But on the other hand, he did mention checking out the book "Sizing Up the Universe" and was thinking of utilizing it as a teaching tool.

The club has received a donation of an 8" Celestron SCT on an older CPC mount configuration. Once we check it over and determine it's usability, we will need to decide how it should be utilized.

I hope that some of you got out to see the eclipse of the Moon last month. It was a clear night, and I think there were several members out doing photography. We had a great meeting last month with a wonderful presentation by Dr. Gott and Dr. Vanderbei. Thanks again to Dee Bosch for providing all the goodies after the presentation. Next meeting we will have Ken Kremer back to give us an update of the goings on at NASA and the future of the space program.

See you all on January 11th!

*Ludovico D'Angelo, Director*

## Sidereal Times is Available as a Blog!

Sidereal Times is available as an online blog at <http://princetonastronomy.wordpress.com>. Articles will be posted to the blog monthly at the same time Sidereal Times is mailed to members.

Members are encouraged to subscribe to the online version via the RSS feed by clicking on the red icon on the upper right side of the home page under the words "Subscribe". All articles will be automatically sent to the RSS feed reader of your choice when they are posted. For additional information on RSS feed readers, see [RSS Explained](#)

The online version allows members to comment on the articles. To maintain cordial and family-friendly discourse, members are asked to abide by the comment rules posted on the site. Violators will be banned from the blog.

We hope members enjoy this alternative way to get club news and meeting announcements.

## Membership Meeting Minutes December 14, 2010

Director Ludy D'Angelo called the meeting to order, and announced that he has received two emails from people who want to donate an 8" telescope and other astronomy related equipment to the AAAP. Ludy will check out the condition of the equipment.

**Secretary's Report:** There was no report.

**Treasurer's Report:** The Treasurer's Report appears in another section of the Sidereal Times.

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

**Friday, January 28, 2010**

**Send your submissions to:**

**[editors@princetonastronomy.org](mailto:editors@princetonastronomy.org)**

**Outreach Report:** Outreach Coordinator David Letcher indicated that the Riverside School event that was scheduled for this evening, was cancelled by the school and will not be rescheduled in December.

**Website:** Webmaster John Miller and member Michael Wright gave a progress report on the project to develop the Sidereal Times as a blog and interactive medium.

**Observatory Report:** Gene Ramsey announced that he and John Church had winterized the observatory just before Thanksgiving. Gene and Jeff Bernardis are investigating improvements to the security system. Gene suggested that the AAAP purchase an air compressor to do some of the winterization work at the observatory. Member John Giles gave an update on the repair to the refractor's Losmandy mount.

**Program Chair:** John Church provided the names of the speakers who will be doing our monthly lectures through the remainder of the year. The lectures for March and May of 2011 are still open.

**Other:** The upcoming lunar eclipse was discussed and it was noted that the AAAP will not be doing a formal event for the occasion. Also, Ludy announced that on January 2, the planets Jupiter and Uranus will be very close together, close enough to be seen in the same field of view with a small telescope, and he is planning an event at the observatory.

Member Rex Parker asked if anyone has seen the DVD archives of Sky and Telescope magazine. He indicated that if it is reviewed well, the AAAP should consider buying a copy and make it available to the membership through the Library.

A suggestion was made that the AAAP obtain a copy of member Bob Vanderbie's new book and make it a prize for Star Quest.

**Sidereal Times:** Next deadline is December 29

*Larry Kane, Secretary*

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## Community Outreach

There are no current requests for community outreach. As requests are received I will email notices.

*David Lecther, Outreach Coordinator*

**Interested in keyholder training?**

**or**

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## Treasurer's Report

Dues for the current fiscal year are continuing to come in. To date we have 59 paid members for FY 2011, totaling \$2,340 in dues compared to \$3,560 for all of last year and \$4,147 for the year before. Thank you to those who have sent in their dues! It would be great to receive renewing member's dues before year end.

Some trailing expenses for StarQuest have reduced the surplus on 2010's event to \$466, which is still excellent.

In December we will pay our annual insurance premium of roughly \$1,000.

Our surplus for the fiscal year-to-date is approximately \$2,700, and on a cumulative basis it is roughly \$21,000.

*Michael Mitrano, Treasurer*

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## From the Program Chair

Our very successful and well-attended December 14<sup>th</sup> meeting featured Prof. (and AAAP member) Bob Vanderbei and Prof. J. Richard Gott of Princeton University discussing their new National Geographic book, "Sizing Up the Universe." The book has many of Bob's photos taken from his own driveway. Their presentation was excellent, and the authors signed many copies of their book during the intermission.

On January 11<sup>th</sup> we will have our own Dr. Ken Kremer to speak on "The Space Shuttle, The Space Station, and What's Beyond for NASA." The talk will include many of Ken's photos and descriptions from personal behind-the-scenes visits to the Kennedy Space Center at Cape Canaveral, where Ken has a press pass. This should be a highly educational meeting and we hope to have another large crowd. Those so interested will have the opportunity to purchase some of Ken's unique memorabilia of these visits during the intermission. Please see Ken's website: <http://www.rittenhouseastronomicalociety.org/Dr.Kremer/K.htm> for more background.

*There will be a premeeting dinner at 6:00 pm. Please email by noon on Tuesday Jan. 11<sup>th</sup> for a reservation and the dinner location.*

On February 8<sup>th</sup>, Dr. Fronefield (Froney) Crawford from Franklin & Marshall College in Lancaster, PA, will be speaking on the topic of "New Searches for Old Pulsars." Further details will be available in the February issue of *Sidereal Times*.

Programs for March and May will be announced later. On April 12<sup>th</sup> we will have Michael Molnar speaking on "The Star of Bethlehem," a topic he has extensively researched. Michael will be signing copies of his book on this subject during the intermission. And on June 14<sup>th</sup>, we will be treated to another presentation by Bill Murray in the New Jersey State Museum Planetarium in Trenton.

*John Church, Program Chair*

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## Opportunity Rover Snaps Gorgeous Panoramas of Santa Maria Crater and Intrepid Crater

The Opportunity rover is sending back a multitude of awesome views of Santa Maria Crater since arriving at the western edge on Dec. 15 (Sol 2450). This intermediate stop on the rover's 19 km long journey from Victoria Crater to giant 14 km wide Endeavour Crater certainly looks to be well worth the trip.

Santa Maria is just 6 km from the western rim of Endeavour which is surrounded by phyllosilicate clays - which formed in water and have never before been directly analyzed on the Martian surface.

Opportunity has been on a swift advance over smooth terrain since departing from Intrepid crater in mid- November which was named in honor of the Apollo 12 mission which landed 2 men on the moon 41 years ago in November 1969.

Santa Maria appears to be relatively unweathered and fresh. The crater is 90 meters in diameter. A multitude of inviting rocks and boulders from the impact ejecta are strewn about making this a Martian geologists dream.

After initially driving to a distance of about five meters from the rim on Dec. 16 (Sol 2451), Opportunity has now carefully crawled even nearer to the precipice of the craters steep cliffs. The rover snaps a series of panoramic images at each stop to document the site scientifically and esthetically.

The team back on Earth must tread with extreme caution as Opportunity creeps ever closer to the edge lest she fall off a cliff. Opportunity is now positioned close enough to point her cameras directly at the steep walled cliffs and towards the sand dunes at the crater floor unveiling another stunningly gorgeous Martian vista.

Compare the panoramic mosaics from Sols 2451 and 2454 above and below - created by Ken Kremer and Marco Di Lorenzo for Universe Today - as Opportunity pulled up to the rim in stages and began exploring the crater environment from different vantage points.

The rover handlers are highly adept at precisely maneuvering the 175 kg vehicle back and forth inside the danger zone at crater rims. After all Opportunity has been on a crater tour for her entire 7 year extended mission to the red planet and controllers at NASA's Jet Propulsion Laboratory (JPL) have honed their driving techniques at countless locales both treacherous and dazzling.

High priority activity on the west side of Santa Maria includes collecting a series of high resolution stereo panoramas which will be used to create a digital elevation map in 3D. JPL engineers will move Opportunity in a counterclockwise direction around the rim before heading to Endeavour crater.

Opportunity will drive to an area on the southeast portion of Santa Maria that shows exposures of water bearing sulfate.

Opportunity will stay at Santa Maria through the upcoming Solar conjunction which starts in late January and ends in mid-February. The rover will remain stationary during that period and conduct a lengthy investigation of a specific spot using the instruments on the robotic arm - which include spectrometers, a microscope and the rock drill known as the RAT or Rock Abrasion Tool

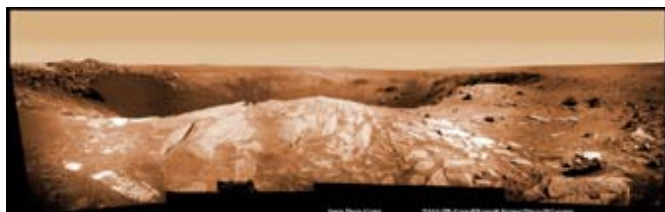
Opportunity remains healthy, has abundant solar power for the final leg of the eastward march to Endeavour and celebrates 7 Years on Mars on 24 Jan 2011.

More details in my articles online at Universe Today:

<http://www.universetoday.com/81838/opportunity-shoots-awesome-views-of-santa-maria-crater/>

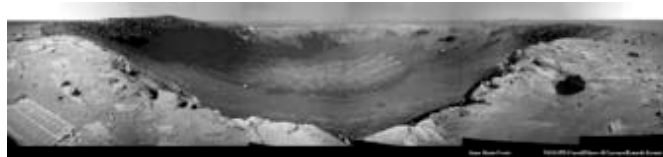
<http://www.universetoday.com/81738/landfall-at-santa-maria-for-opportunity-on-mars/>

<http://www.universetoday.com/81789/powerful-mars-orbiter-directs-opportunity-to-clays-and-hydrated-minerals/>

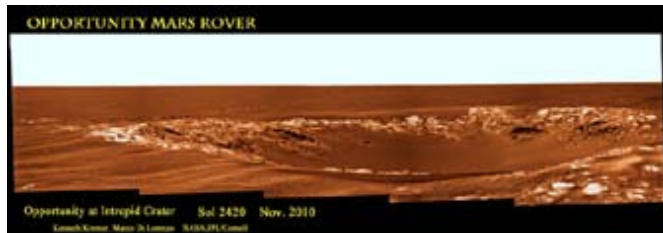


Panoramic view of Santa Maria Crater taken by Opportunity Mars rover about 5 meters from the rim on Dec 16, 2010 on Sol 2451.

Water bearing materials are located at the southeastern edge of the rim located roughly at the center of this image. Credit: NASA/JPL/Cornell, Kenneth Kremer, Marco Di Lorenzo



Opportunity drove closer to within 5 meters of the rim on Sol 2454 and snapped this gorgeous panoramic vista revealing interior steep cliffs and sand dunes. Credit: NASA/JPL/Cornell, Marco Di Lorenzo, Kenneth Kremer



Opportunity arrived at 'Intrepid' Crater on Mars during November 2010 and drove around crater rim. See rover wheel tracks at left. Intrepid crater was named in honor of the Apollo 12 lunar module named 'Intrepid' - which landed two men on the moon on 19 November 1969. Mosaic Credit: Kenneth Kremer, Marco Di Lorenzo NASA/JPL/Cornell

#### Astronomy Outreach by Ken Kremer

At the AAP January 2011 monthly meeting, I'll speak about my up close experiences at KSC with the Shuttle, Orion, SpaceX and Robonaut 2 - the first humanoid robot in space.

**Amateur Astronomers Association of Princeton:** Princeton, NJ, Jan 11, Tue, 8 PM "Whats Beyond for NASA: Shuttle, Station, Orion, SpaceX & Robots". Website: <http://www.princetonastronomy.org/>

A selection of my Shuttle pictures and Mars panoramas will be available for sale.

Please contact me for more info or science outreach presentations at or my website: [www.kenkremer.com](http://www.kenkremer.com)

#### Dec 21 Lunar Eclipse Photo



Taken in "bonechilling" Lawrenceville, NJ with a 250 mm Canon lens at about 1 sec exposure. Totality was a brilliant crimson to blood red and looked to be dripping with blood droplets -almost unreal. Credit: Ken Kremer

Further details in my story online at Universe Today:

<http://www.universetoday.com/81923/red-moon-red-planet/>

Ken Kremer

## 20 Years Ago In Sidereal Times...

\* \* \* \* \* SIDEREAL TIMES \* \* \* \* \*

Amateur Astronomers Association of Princeton

Director: Larry Smith                      Editor: JWHS

JANUARY 1991

WHY NOT start off the new year with another sampling of AAAP's brilliant insights, as recorded in the Observatory's log? Here goes:

5/28/90: Opened at 8:00 P.M., regular session. Ranger's lock was improperly locked. Could not get in the gate. The "Cavalry" arrived just in time. Chris, the female ranger, unlocked gate. She said it was probably the maintenance men. She will instruct them again, i.e. the summer help. Ron Mittelstaedt showed up at 8:45 P.M., helped open the Observatory with Ed Petrie.

5/29/90: Bill Murray and Vic Belanger opened at 8:33 P.M., closed at 2:06 A.M.

6/24/90: Bill Murray and J. Simpson opened at 9:00 P.M. Sky is CRUD! Closed at 11:20 P.M.

[I thought it appropriate to close after another Murray "It's Miller Time!", eh? Ed.]

### PRE-MEETING NOTES

Our January 1991 AAAP meeting will take place at Princeton University's Peyton Hall at 8:00 P.M. on Tuesday January 8, 1991.

Professor Donald P. Schneider of The Institute for Advanced Study will discuss the involvement of Princeton-based researchers in the exciting new astronomical observatory, the Hubble Space Telescope. He will outline Hubble science Projects, both current and planned, with emphasis on revised experiments and early results. Dr. Schneider has been described by Prof. Freeman Dyson as the Institute's only real astronomer. He has observed at Palomar and has found the Universe's most distant object.

Dr. Schneider is a native of Nebraska, and graduated from the University of Nebraska in 1976, with degrees in Mathematics, Physics, and Astronomy. He received a Ph.D. in astronomy from the California Institute of Technology in 1982. His thesis, done under James Gunn, investigated the properties of distant clusters of galaxies. Dr. Schneider received a long-term appointment at The Institute for Advanced Study in 1985, where his primary interest is in cosmology.



Dr. Schneider is an Associate Member of the team that built the camera for the Hubble Space Telescope, and along with John Bahcall, is responsible for analysis of HST data for science programs associated with The Institute for Advanced Study.

-Vic Belanger

#### FROM THE DIRECTOR

Our reservation for the June 14-16 1991 Beemerville "1991 Jersey Starquest Convention" has been confirmed by Rutgers. At the January business portion of our meeting I will ask for additional volunteers to head the various committees and we will start the planning process. Greg Mauro has volunteered to be Chairman for the event.

We have scheduled Board of Directors meeting for January 23, 1991 at 7:30 P.M. We will specify the location at the January meeting.

Super Science Weekend is scheduled for January 12-13 at the New Jersey State Museum. The times are 9:00 A.M.-5:00 P.M. on Saturday and 11:00 A.M.-5:00 P.M. on Sunday. We exhibit at this meeting to recruit new members, raise funds by selling magazines, and to promote amateur astronomy. This year, I would also like to provide information to the public on helping to prevent light pollution. I am asking for volunteers to work at the exhibit.

I have been contacted by Will Ashton, who indicated that he has a number of telescopes for sale at reasonable prices. If anyone is interested they can contact Will at 1-215-795-2125.

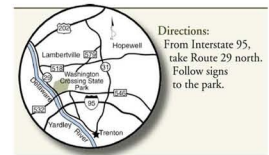
-Larry Smith

THE STAR HILL INN, SAPELLO/NEW MEXICO  
[Star Hill Inn, Sapello, NM 87745. Phone 1-515-425-5605]

The Star Hill Inn; you've seen the ads in Sky & Tel and may have wondered about this "Astronomer's retreat in the Rockies". We traveled down to Sapello, New Mexico during the Orionid meteor showers (October 20-23) and stayed three nights in this secluded, rustic sanctuary in the foothills of the Sangre de Cristo mountains over-looking the great plains of the eastern New Mexico desert. Phil Mahan, co-owner of the inn with his wife Blair, is a knowledgeable amateur astronomer who has taught workshops in astronomy and has used much of his expertise in designing a vacation spot with the amateur astronomer in mind. Indeed, there is probably no place like the Star Hill Inn in the rest of the country. Everything is designed to maximize darksky obser-

# Amateur Astronomers Association of Princeton - Simpson Observatory

## AAAP



Directions:  
From Interstate 95,  
take Route 29 north.  
Follow signs to  
the park.

The Observatory is open to the public every clear Friday 8 to 11 PM from April to October.

Enter the park via the Philips Farm Day Use Area on Route 579, not the main park entrance. Drive past the soccer fields on the right to the soccer parking lot and look for a dirt road on left. Drive down the dirt road. Turn right on to the blacktop road and follow it to the observatory, which is on the right after the first bend.

Parking is permitted along one side of the paved road in front of the observatory. Keep vehicle wheels off the grass.

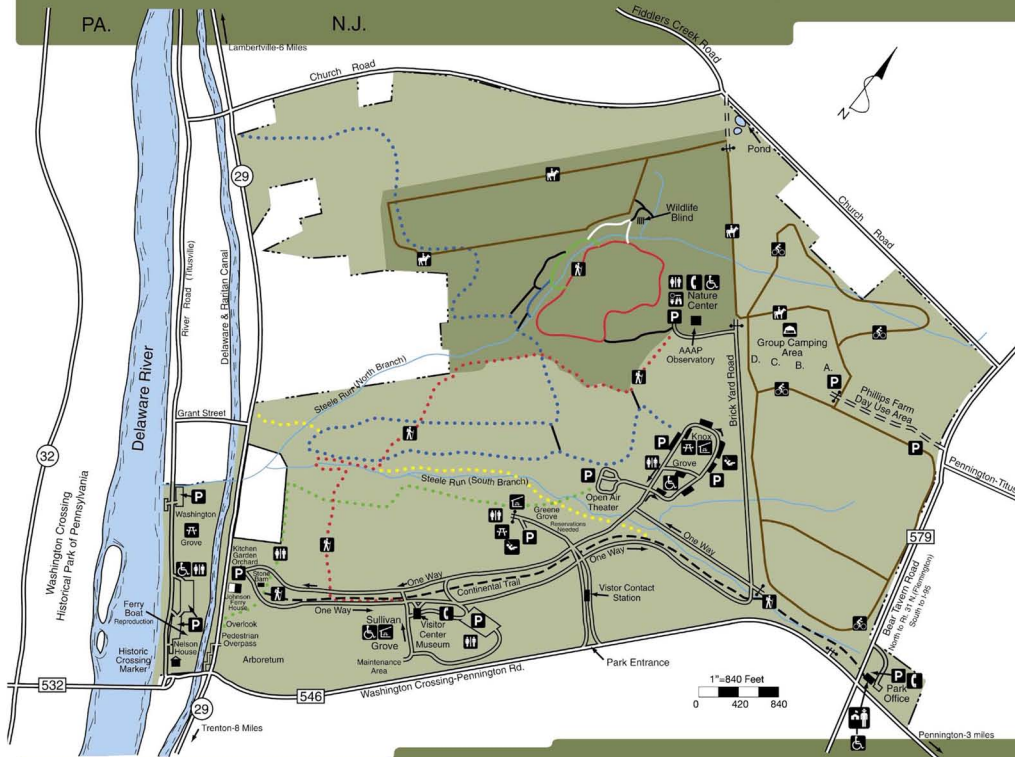
Members and guests must be accompanied by a Keyholder except on public nights.

Observatory phone: 609-737-2575

Park police: 609-737-0623

GPS:  
Lat: 40° 18' 51" or 40.314°  
Long: -74° 51' 42" or -74.862°

[www.princetonastronomy.org](http://www.princetonastronomy.org)



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

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