



NEWSLETTER

# RITTENHOUSE ASTRONOMICAL SOCIETY

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## Special Meeting on May 9, 2007

**Time: 7:00 PM**

*Location: Stearns Auditorium*

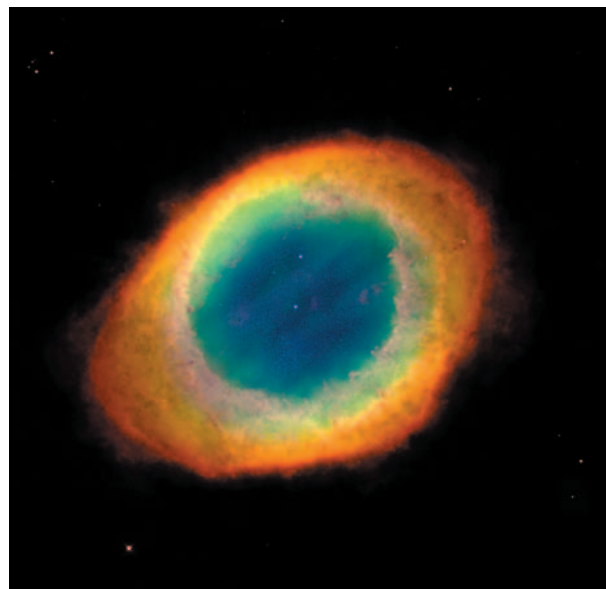
### *God, Astronomy and the Search for Elegance*



**Brother Guy Consolmagno**

**Vatican Astronomer - Curator of Vatican Meteorite Collection**

*This is an R.S.V.P. Event open to the General Public, Rittenhouse Members, and Students.  
Please call 215-448-1231 beginning April 25th between 9:00 am - 5:00 pm to R.S.V.P.  
Rittenhouse Members are encouraged to call as early as possible to ensure proper seating.*



The Jesuit scholar and astronomer will help you understand “There’s nothing in science that is anti-religious.” “Science is an act of faith.” Brother Guy spends his time at the Vatican Observatory at the Pope’s summer residence in Castel Gandolfo, Italy, the University of Arizona’s Steward Observatory and teaching at universities.

### Meeting Agenda

Call to Order: Dr. Milton Friedman
Welcome & Introduction - Dennis Wint, President TFI
Feature Presentation - Brother Guy Consolmagno
Questions & Answers

### Open to the Public and Students

Stearns Auditorium
The Franklin Institute
20th Street and Benjamin Franklin Parkway
Philadelphia, PA

## 3-D Climax: *True Value of Stereoscopic Images*



Martian Bandits take over TFI conference center

Those members who attended our last two meetings were treated to an amazing journey. Through the far reaches of the universe we wandered with Dr. Lamperti experiencing the beauty of the cosmos in March. April found us back in our solar system, for some spectacular planetary views down to the surface of Mars with Dr. Ken Kremer. 3-D was the theme and both talks had many fantastic views. 3-D turned out to be a rewarding experience, but we learned some of its true value and difficulties along the way.

Our first experience we tried in the Planetarium. The curvature of the dome had little effect to deter the 3-D images. The brightness of the projector did not prove enough for some images to pass through the red lenses on our viewers. The size of the image was spectacular due to the size of the Planetarium dome and when the image worked, it seemed a hole was blown through the roof!

At times I found I needed to remove the glasses to educate my eye as to where the 3-D would have the most effect. Sometimes focusing on a blank area of the image (possibly forcing the eye to focus on infinity) would enhance the 3-D effect. I was very glad to have Dr. Lamperti delivering the presentation because of the wealth of knowledge, and details used in his narrative. He made the presentation informative and enjoyable. He guided one to see the 3-D effect.

For Dr. Kremer's talk in April we were fortunate to have the Institute's video conference center with its brighter projection system. Dr. Kremer suggested we try a different color lens in our 3-D viewers (Magenta instead of red and a lighter shade of blue called Cyan.) Members were encouraged to bring back their original pair from the previous month. We supplied everyone with a second set of 3-D viewers and members could compare and select which glasses worked best for them. Dr. Kremer mixed a variety of regular images, updating us on current missions and showing us views of our planetary system, and then jumped into 3-D for his planetary tours.

Dr. Kremer also displayed some high resolution photographic posters of the surface of Mars for the end of his talk. I really didn't expect much more excitement after seeing those amazing images projected on the giant board room screen. However, when I approached the crater on Mars, I honestly thought there looked as if a hole was punched through the wall. What a climax! Victoria Crater mesmerized the audience in high resolution 3-D! The detail, and depth of vision was astounding, on the order of 10 fold compared to the projected images. I had to resist touching the image as if to put my hand into it. The detail enthralled me to spend a good amount of time viewing the ravines running down the walls of the crater to the depths below.



RAS has agreed to make amends for the damages to TFI conference center walls

Dave Walker (RAS Liaison / Photographer) explained to the group the difference. Projection systems although large, are only throwing 1024 x 768 pixels and at best 1280 x 1024. He explained the resolution of the photograph was so much greater since it is on the order of 10 times the pixels per inch. I and others were amazed at the detail that would stand out. Dr. Kremer explained how the image helps scientists choose the wisest paths to steer the rovers. The slope and rock outcroppings can be better understood using stereographic images, thus allowing us to keep the rovers from falling over, or sliding down a loose crumbly sloped terrain.



So we come to an end this year of our 3-D travels through the universe. Much thanks to Dr. Albert Lamperti (DVAA) and Dr. Ken Kremer (JPL/NASA Solar System Ambassador) for helping us to view the universe from a new perspective. We appreciate their willingness to experiment with us to find how to best bring these images to the RAS members and visitors of the Franklin Institute. The effort and time put into making many of the images, and related research required for the explanations of what we were seeing is evident to all who attended and also greatly appreciated.

~Ted Williams

**Visible Planets 05/09/2007**

	Rises	Transit	Sets
Mercury	06:11 am	01:27 pm	08:45 pm
Venus	08:18 am	03:59 pm	11:39 pm
Mars	03:46 am	09:38 am	03:30 pm
Jupiter	10:15 pm	02:57 am	07:40 am
Saturn	12:16 pm	07:16 pm	02:16 am

## EarthShine:

As the weather breaks and the nights warm, the early evening view has been breathtaking. Venus dominates the western evening skies. The weekend after the Nor-Easter slowly left us, we had some good skies to see the moon gracefully arc past Venus, first appearing in crescent phase below, then the next night above. Appearing to dance through the stars of Taurus, while Orion watches as they set to the South West, observers could see solar system objects among some of the brightest winter stars. Many people were commenting on the “evening star” and had questions as to what they were seeing. The recent increase in interest of the sky is probably due to the break in a long spell of rainy weather. The view has been quite rewarding.

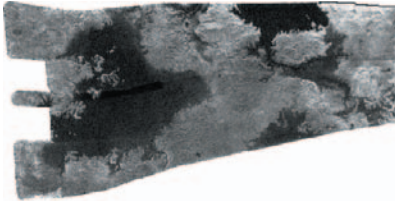
Sky observers have been recently treated to a view of Earth Shine. That is when the dark side of the moon, normally in the moon’s shadow, is illuminated. That pale gray glow that sometimes appears on the dark side is actually a reflection of light that has bounced off of Earth and originally emanated by our Sun. Since the moon is a sphere, the bright side we see is facing the Sun, the darker side faces away from the sun. The darker side is normally obscured from our view (no light reflecting from its surface.) When we see it faintly illuminated, we are seeing light that has traveled from the Sun to the Earth and then to the Moon. Weather conditions and the positions of our oceans all have to align to cause this illumination.

~Ted Williams



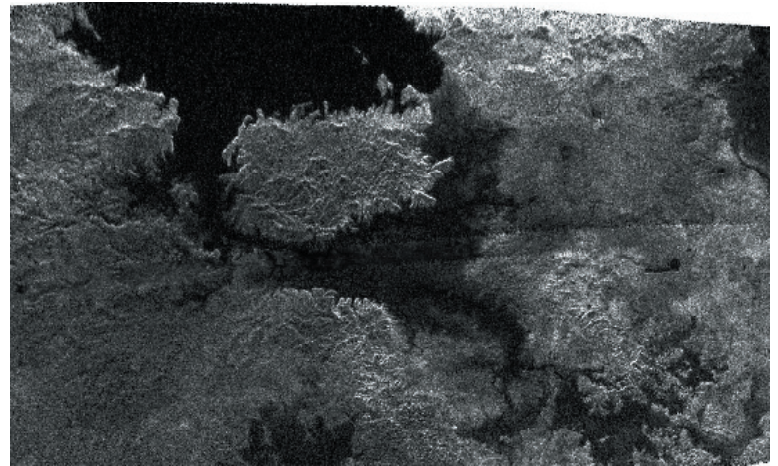
## Islands inside the Great Lakes of Titan:

The Cassini orbiter transmitted back new radar and visible light data from the close flyby of Titan over the high northern latitudes on 22 Feb 2007 and revealed a giant new lake over 100,000 km<sup>2</sup> in size and larger than Lake Superior (82,000 km<sup>2</sup>). A vast 90 km wide island was discovered in the middle of the lake, located near the north pole of Titan (see radar image below) at 79 degrees North. These lakes are not merely pure methane, but are also comprised of ethane and more complex organic molecules according to Dr. Jonathan Lunine, who gave a lecture on the discovery of Titan's lakes in Princeton, NJ a few days after this radar image was taken. Dr. Lunine, a Cassini science team member from the University of Arizona, speculated that ammonia may also be a significant constituent of the lakes. Ammonia would cause the lakes to freeze at a lower temperature.



This view from the end of the T25 radar swath shows the island in context with several large lakes near to the north pole of Titan.

Dr. Ken Kremer  
NASA JPL Solar System Ambassador  
Email: kremerken@yahoo.com



This radar image was taken by the Cassini radar instrument on 22 Feb 2007 and is a small portion of a much larger image taken during the T25 flyby. Cassini flew within 1000 km (621 mi) of Titan's surface and crisscrossed over six previously mapped areas. This image offers further evidence that the largest lakes are at the highest latitudes. Another portion of the radar image shows vast dune fields in the equatorial regions of Titan, which are largely organic in nature.

Photo Credit: NASA/JPL <http://photojournal.jpl.nasa.gov/catalog/PIA09180>

For more information visit  
<http://saturn.jpl.nasa.gov> and <http://ciclops.org>

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## Astronomy News Update:

If only we could hop on the next spaceship going to a star Gliese 581, we might find a Rittenhouse Astronomical Society on the newly discovered, possibly habitable, Earth-like planet known as Gliese 581c. Of the 220 known planets beyond our own solar system, most are large. Gliese 581c was not only the first planet about the size of Earth to be found but fortunately it is located at the right distance from its star where liquid water could exist. Water is considered a necessary finding for life to occur. Earth's diameter is 8,000 miles and Gliese 581c has an estimated diameter of 12,000 miles. Its mass is 5.03 times heavier than Earth and



all this means it could be a place where aliens are looking back at us. The sun is a red dwarf star that is only seven million miles from Gliese 581c. This might result in gravitational locking with one side of the planet always facing its sun. One side of the planet may always be in daylight and the other side in perpetual darkness. The stronger gravity up there would make visitors weigh heavier and the dimmer sun, (the red dwarf), would appear 20 times bigger than our sun. An alien on Gliese 581c would have a birthday every 13 days because that is the length of the year. Until more facts come in, it's safer to stay here and be a part of our Rittenhouse Astronomical Society at the Franklin Institute.

~Dr. Milton Friedman