



THE OBSERVER

SAN BERNARDINO VALLEY AMATEUR ASTRONOMERS

Member THE ASTRONOMICAL LEAGUE

"Celebrating Forty-Eight Years of Amateur Astronomy"

VOLUME #48 ISSUE #05

May 2006

Alex McConahay, president of the RAS, will give a presentation called "Astro Hobby 101"

Stunning Vistas May 12, 2006

The Cassini spacecraft delivers this stunning vista showing small, battered Epimetheus and smog-enshrouded Titan, with Saturn's A and F rings stretching across the scene.

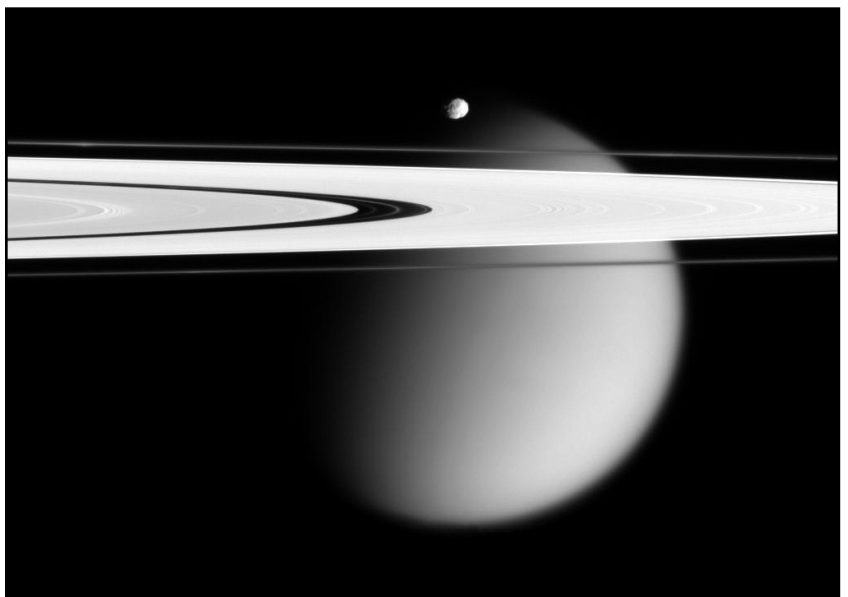
The prominent dark region visible in the A ring is the Encke Gap, in which the moon Pan and several narrow ringlets reside. Moon-driven features that mark the A ring are easily seen to the left and right of the Encke Gap. The Encke Gap is 325 kilometers (200 miles) wide. Pan is 26 kilometers (16 miles) across.

In an optical illusion, the narrow F ring, outside the A ring, appears to fade across the disk of Titan. A couple of bright clumps can be seen in the F ring.

Epimetheus is 116 kilometers (72 miles) across and giant Titan is 5,150 kilometers (3,200 miles) across.

The image was taken in visible light with the Cassini spacecraft narrow-angle camera on April 28, 2006, at a distance of approximately 667,000 kilometers (415,000 miles) from Epimetheus and 1.8 million kilometers (1.1 million miles) from Titan. The image captures the illuminated side of the rings. The image scale is 4 kilometers (2 miles) per pixel on Epimetheus and 11 kilometers (7 miles) per pixel on Titan.

Credit: NASA/JPL/Space Science Institute



MEETING: May 20, 2006--7:00PM

"Bring Scopes for Lunar and Planetary Observing"

SAN BERNARDINO COUNTY MUSEUM

CALIFORNIA STREET EXIT FROM INTERSTATE 10

PRE-MEETING DINNER: 5:00PM HOMETOWN BUFFET, LOMA LINDA

SBVAA OFFICERS

President: Martin Carey (909) 783-0839
Vice-President: John Deems (909) 584-7568
Treasurer: Fidel Hernandez (909) 864-0615
Newsletter Editor: Bill Myerchin
 (909) 824-7626/(909) 881-2923
 e-mail: WSMyer@aol.com.
 www.myerchinphoto.com
Secretary, Educational Outreach: Chris Clarke
 (909) 888-6511, ext 8539-Work
 (909) 875-6694-Home
Star Party Coordinator: Tom Lawson
 (909) 882-8198
SBVAA Webmaster: Steve Miller
 (625) 859-7776

SBVAA WEBSITE:
www.sbvaa.org

May Meeting:

Alex McConahay, president of the Riverside Astronomical Society, will return and give us a presentation called "Astro Hobby 101," what brought us into it, and what keeps us at it.

On the agenda for discussion will be sites and locations of star parties, outreach events, and RTMC. Also, we will consider the merits of several eating establishments, and consider a proposal for a change in our monthly eating tradition. The weather is predicted to favor us taking a last look at Saturn, and also for viewing Jupiter. Come on out!

email
articles and photos for
The Observer to:
WSMyer@aol.com

SBVAA

CALENDER OF EVENTS 2006

Meetings held at the
 San Bernardino County Museum
 For information, call Chris Clarke at (909)
 888-6511, ex.1458

May 20.....Meeting (3rd Saturday)
 May 27.....Star Party
 June 17.....Meeting (3rd Saturday)
 June 23-25.....Star Party (Grandview)
 July 15.....Meeting
 July 22.....Star Party
 August 19.....Club Barbecue (3rd Saturday)
 August 26.....Star Party

RTMC Astronomy EXPO

May 26-28, 2005

Camp Oaks, Big Bear, CA

DAY USE
 per person.....\$15.00
 after May 1st...\$20.00

Questions...
(909) 948-2205

<http://www.rtmcastronomyexpo.org>

The Theme for 2006 will be
 "Preserving and Observing the
 Dark Sky."

Keynote Speaker
Dr. Mike Brown: "Beyond Pluto: Discovery
of the 10th Planet"

President's Message

By Martin L. Carey
martincarey@sbcglobal.net

The star party at Johnson Valley was spectacular, with no wind, good transparency, and good seeing. All six of us agreed that the rest of you missed out on one of the best nights we have seen at this location. Tom Lawson, Paul Little Coyote, Terrence, Chris, and a few more of us stayed late. I would have slept there, but had no sleeping gear. Omega Centauri looked the best I have seen it.

Schwassmann-Wachmann-3 has turned out to be a moderately bright comet with a nice, straight tail. It passed very close to the Ring Nebula, M57. I hope you have gotten chance to see it. It is still prominent in the late Spring, early summer constellations, and is also visible from my urban driveway. See last issue of The Observer for links to good websites on this comet. Speaking of other comets, Tom reminded us that he puts the latest comet and planetary data on his star party announcements.

Ok, here are seven good reasons to throw a tent, a jacket, and a bag into your car, and head for RTMC next weekend:

1. RTMC is the largest collection of astronomy nerds this side of the Pacific. Our 1500 nerds are better than most other species of nerd, quite harmless, really. The secret is to act like they do.

2. You get a little sunburned, dusty, and a great deal of exercise (or not). You get to sleep under pines and cedars, and breathe cleaner air. This is all good.

3. You can meet some very interesting characters there. Some of them know quite a bit about their subject, although some are just characters. Years back, I met RTMC's founder, Cliff Holmes, before he died. Great guy.

4. The vendors can actually have some good stuff, while the Saturday Swap Meet always reminds me of a combined mad scientist's basement-alchemy faire. Carpe Deum, but Caveat Emptor!

5. Mike Brown from Caltech will talk about the possible tenth planet. The fact that some consider this to be heresy will add some life to the discussion afterward. I love a good argument, although I haven't taken sides yet.

6. We'll have a booth where we can hang out, and also see Jerry's photos.

7. In the Beginner's Corner tent I will be giving a Powerpoint on how to get the most out of your telescope. We'll also have a beginner's star party near the lower field, where we'll have scopes to share the sky—like what we do as a club.

ASTRONOMY DAY AT CAJON HIGH SCHOOL

I would like to invite the SBVAA to come to Cajon HS for our annual Astronomy day celebration on June 1st, Thur at the Cajon HS campus at 1200 Hill Dr. San Bernardino from 2:30 to 9:00PM in room B-1. I would like to have several speakers in the afternoon and some solar observing. We will have several students speak and do some internet searches for sunspots and the evening observing session. I have asked James Buttes to speak but he is out of town that day. If anyone would like to contribute to this event I would be most grateful. I would also encourage members to bring solar and/or evening observing telescopes. We will be ordering free pizza for all that come.

Please let me know who might be available and what their topic would be so I can schedule them in.

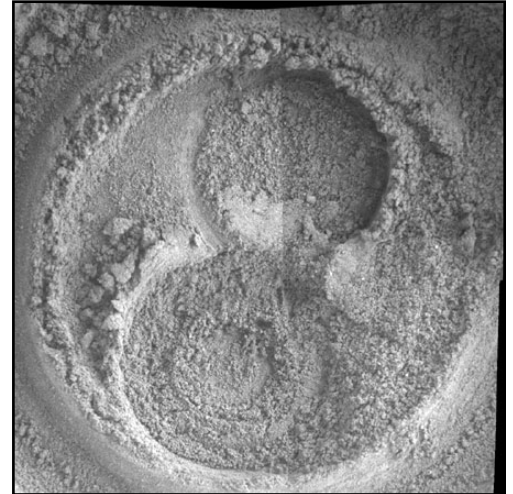
Thank you,
Rick Loomis
909-881-8120x5604(Cajon HS)
909-528-7300 (cell)

MARS ROVERS UPDATES

Looking for Changes in Soil over Time

The grinding teeth have worn away on the rock abrasion tool of NASA's Mars Exploration Rover Spirit (after exposing interiors of five time more rock targets than its design goal of three rocks) but the tool still has useful wire bristles for brushing targets. In this image, a figure-eight-like imprint in the Martian soil marks the spot where Spirit has begun examining subsurface deposits layer by layer. The circular indentations resulted from brushing by the rock abrasion tool, one of several instruments on the rover's robotic arm. As an effective brushing tool it is now fulfilling a soil profiling experiment on a target called "Progress."

The experiment is a multi-step process of carefully brushing away fine layers of soil and then using the Mössbauer and alpha particle X-ray spectrometers, microscopic imager, and panoramic camera to examine the exposed surfaces during the long Martian winter.



This view is a mosaic of exposures taken by Spirit's microscopic imager during the rover's 830th Martian day (May 4, 2006). The total area shown is about 6 centimeters (2.4 inches) square. Image credit: NASA/JPL/Cornell/USGS

OPPORTUNITY UPDATE: 'Victoria' in View - sol 804-810, May 04, 2006:

Opportunity executed a three-sol examination of "Brookville" outcrop with tools on the robotic arm. This work included microscopic imaging, a brushing, 16 total hours of integrated data gathering with the Mössbauer spectrometer, and an overnight integration with the alpha particle X-ray spectrometer. Then Opportunity stowed its arm and drove 107 meters (351 feet) in three sols, reaching a point estimated to be 1,279 meters (less than eight-tenths of a mile) from "Victoria Crater." The team believes the rim of the crater is becoming visible in a vertically stretched image looking south.

CASSINI UPDATE

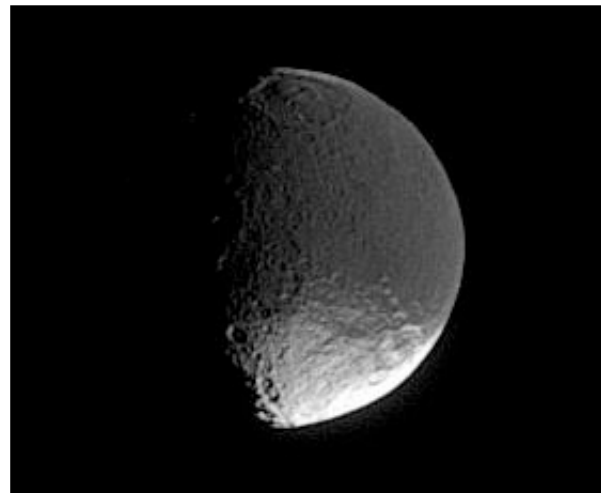
Mysterious Iapetus May 12, 2006

A distant glimpse of Iapetus reveals details within the dark terrain of Cassini Regio, including an impact basin at top that is roughly 400 kilometers (250 miles) wide.

Researchers remain unsure about the mechanism that has darkened the leading hemisphere.

This view looks toward the southern hemisphere on the leading side of Iapetus (1,468 kilometers, or 912 miles across). North is up.

The image was taken in visible light with the Cassini spacecraft narrow-angle camera on April 4, 2006, at a distance of approximately 1.4 million kilometers (900,000 miles) from Iapetus. The image scale is 9 kilometers (6 miles) per pixel.



Credit: NASA/JPL/Space Science Institute

**A
SBVAA
THANK-YOU**

**TO
Rudy Rodriguez Jr.
for the generous donation of \$500
to the club in the name of his father,
Rodolfo Rodriguez Sr., who passed away
recently.**

Thank-You

An Invitation To Join

The San Bernardino Valley Amateur Astronomers

- Monthly Meetings/Speakers
- Monthly Star Party
- The Observer Newsletter
- Learn about Astronomy
- Learn about Telescopes
- Learn about Astrophotography

Fill out and mail this form along with \$30.00 Annual Membership Fee. Add an additional \$33.00 to include a one (1) year subscription to "Sky and Telescope" magazine and or \$29.00 for one (1) year subscription to "Astronomy" Magazine.

Make check payable to: **San Bernardino Valley Amateur Astronomers.**

Mail to: **Fidel Hernandez, SBVAA Treasurer,
27799 21st St, Highland, CA, 92346**

Name _____

Address _____

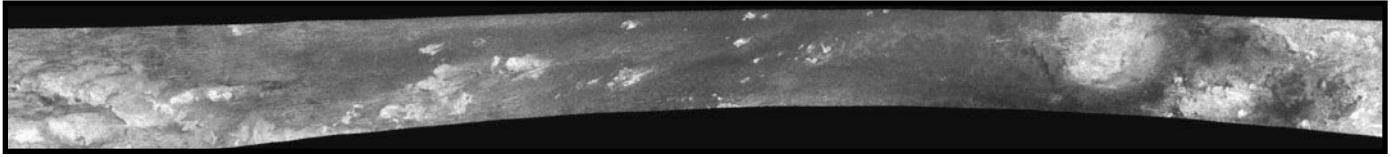
City and State _____

Zip _____ Phone _____

Internet E-mail Address _____

Dunes and More Dunes

May 12, 2006



This image was taken with the Cassini Synthetic Aperture Radar instrument on Oct. 28, 2005.

This was the fourth flyby of Titan during which radar images were obtained, and this pass considerably expanded the coverage of Titan's surface.

The swath is about 6,150 kilometers (3,821 miles) long, extending from 7 degrees north to 18 degrees south latitude and 179 west to 320 west longitude.

The spatial resolution of the radar images ranges from about 300 meters (984 feet) per pixel to about 1.5 kilometers (0.9 miles) per pixel. It covers the area where the Huygens probe landed (eastern end of the swath), giving geologic context for the landing site.

The most ubiquitous features in this swath are "cat scratches," which are interpreted as longitudinal dunes and were first seen in the February 2005 flyby, see Titan, a Geologically Dynamic World.

Also prominent are long, bright ridges, concentrated near the eastern end of the swath. These may be tectonic in origin, and are seen for the first time here. No impact craters are seen, indicating a young surface.

Radar Flyby of Titan - April 30, 2006

May 5, 2006

This map of Saturn's moon Titan shows the location mapped with the Cassini radar mapper using its Synthetic Aperture Radar imaging mode on April 30, 2006.

The global map shows the areas mapped so far by radar. The top radar swath was mapped during a flyby on Oct. 26, 2004. The middle swath was taken during the Feb. 15, 2005, flyby.

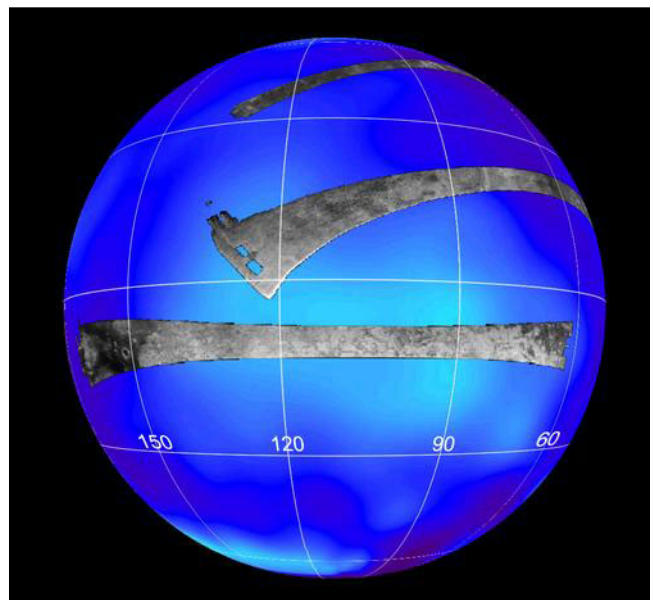
Labels represent the approximate longitude. The radar swaths are superimposed on a false-color image made from observations by NASA's Hubble Space Telescope.

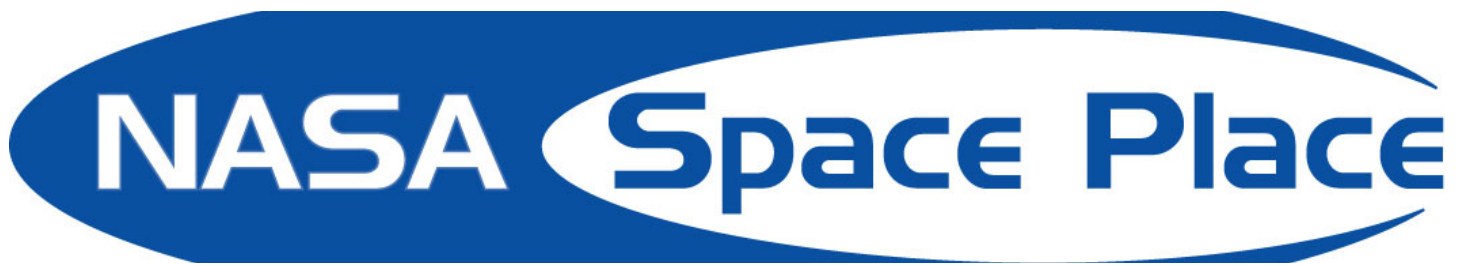
Cassini's radar has revealed a variety of geologic features, including impact craters, wind-blown deposits, channels and cryovolcanic features.

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate, Washington, D.C. The Cassini orbiter was designed, developed and assembled at JPL. The radar instrument was built by JPL and the Italian Space Agency, working with team members from the United States and several European countries.

For more information about the Cassini-Huygens mission visit <http://saturn.jpl.nasa.gov> .

Credit: NASA/JPL/HST





Who Wants to be a Daredevil?

By Patrick L. Barry and Dr. Tony Phillips

When exploring space, NASA naturally wants to use all the newest and coolest technologies—artificial intelligence, solar sails, onboard supercomputers, exotic materials.

But "new" also means unproven and risky, and that could be a problem. Remember HAL in the movie "2001: A Space Odyssey"? The rebellious computer clearly needed some pre-flight testing.

Testing advanced technologies in space is the mission of the New Millennium Program (NMP), created by NASA's Science Mission Directorate in 1995 and run by JPL. Like the daredevil test pilots of the 1950s who would fly the latest jet technology, NMP flies new technologies in space to see if they're ready for prime time. That way, future missions can use the technologies with much less risk.

Example: In 1999, the program's Deep Space 1 probe tested a system called "AutoNav," short for Autonomous Navigation. AutoNav used artificial intelligence to steer the spacecraft without human intervention. It worked so well that elements of AutoNav were installed on a real mission, Deep Impact, which famously blasted a crater in Comet Tempel 1 on July 4, 2005. Without AutoNav, the projectile would have completely missed the comet.

Some NMP technologies "allow us to do things that we literally could not do before," says Jack Stocky, Chief Technologist for NMP. Dozens of innovative technologies tested by NMP will lead to satellites and space probes that are smaller, lighter, more capable and even cheaper than those of today.

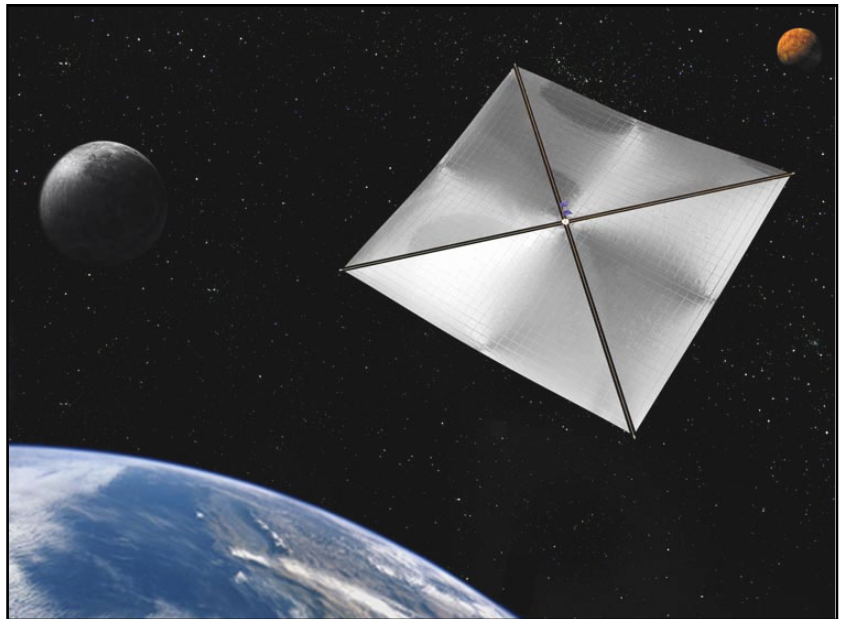
Another example: An NMP test mission called Space Technology 9, which is still in the planning phase, may test-fly a solar sail. Solar sails use the slight pressure of sunlight itself, instead of heavy fuels, to propel a spacecraft. Two proposed NASA missions would be possible only with dependable solar sails—L1 Diamond and Solar Polar Imager—both of which would use solar sails to fly spacecraft that would study the Sun.

"The technologies that we validate have future missions that need them," Stocky says. "We try to target [missions] that are about 15 to 20 years out."

A menagerie of other cool NMP technologies include ion thrusters, hyperspectral imagers, and miniaturized electronics for spacecraft navigation and control. NMP focuses on technologies that have been proven in the laboratory but must be tested in the extreme cold, vacuum, and high radiation environment of space, which can't be fully recreated in the lab.

New NMP missions fly every year and one-half to two years, taking tomorrow's space technology for a daredevil test drive.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



Artist's rendering of a four-quadrant solar sail propulsion system, with payload. NASA is designing and developing such concepts, a sub-scale model of which may be tested on a future NMP mission.

STAR PARTY

**Saturday, May 27, 2006
at Owl Canyon Campground, CA**

See Tom Lawson, Star Party Coordinator,
to receive club online updates and color PDF Newsletter.

MEETING: May 20, 2006--7:00PM

**Alex McConahay, president of the RAS,
Presentation: "Astro Hobby 101"**

"Bring Scopes for Lunar and Planetary Observing"

SAN BERNARDINO COUNTY MUSEUM

2024 ORANGE TREE LANE, REDLANDS, CA

CALIFORNIA STREET EXIT FROM INTERSTATE 10

PRE-MEETING DINNER: 5:00PM, HOMETOWN BUFFET, LOMA LINDA



**SAN BERNARDINO VALLEY
AMATEUR ASTRONOMERS**

PO BOX 9461

San Bernardino, CA 92427