



THE OBSERVER

SAN BERNARDINO VALLEY AMATEUR ASTRONOMERS

Member THE ASTRONOMICAL LEAGUE

"Celebrating Forty-Seven Years of Amateur Astronomy"

VOLUME #47 ISSUE #06

JUNE 2005

Grandview: July 8–9, 2005

Comet 9P/Tempel 1 Impact, July 3, 2005

Astro Video will be shown at meeting

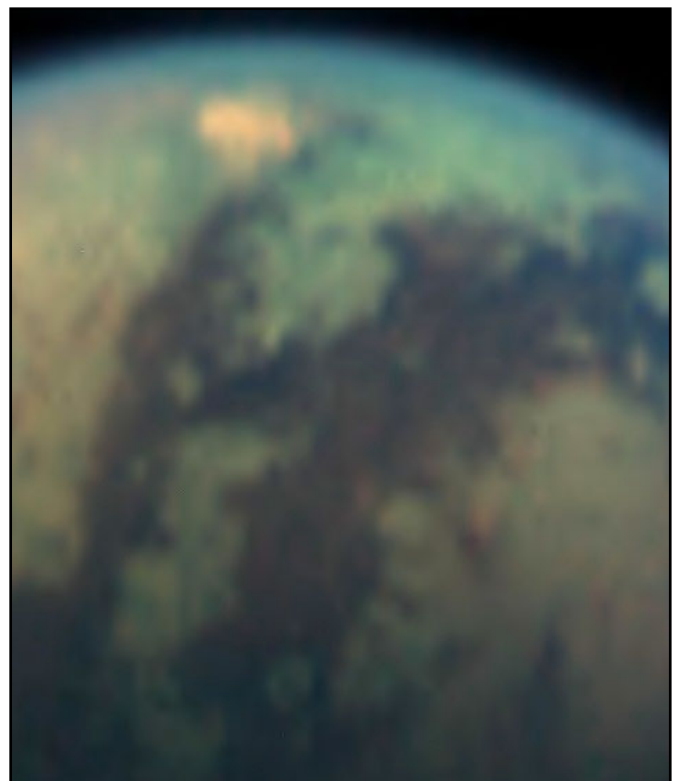
Red Spot on Titan

May 25, 2005

The visual and infrared mapping spectrometer instrument onboard Cassini has found an unusual bright, red spot on Titan.

This dramatic color (but not true color) image was taken during the April 16, 2005, encounter with Titan. North is to the right. In the center it shows the dark lanes of the "H"-shaped feature (see Titan's surface revealed) discovered from Earth and first seen by Cassini last July shortly after it arrived in the Saturn system. At the southwestern edge of the "H" feature, near Titan's limb (edge), is an area roughly 500 kilometers (300 miles) across.

See the full press release story on page seven (7) of the color PDF Observer newsletter.



MEETING: June 18, 2005--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: Jerry Day (909) 425-0825
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

Getting Ready for Grandview JULY 8-9, 2005



By Chris Clarke

Well, its been nine months since our last trip to our favorite dark sky site way up in the White Mountains east of Bishop, and many of us are just itching to get back again. We will be there the weekend of July 8-9th, but some will be going up on Thursday and Friday to get in some extra night's viewing.

SBVAA

CALENDER OF EVENTS 2005

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

June 18.....Meeting (3rd Saturday)
 July 9.....Star Party (Grandview-3
 day old moon)
 July 16.....Meeting (3rd Saturday)
 August 6.....Star Party (new moon)
 August 20.....Club Barbecue (3rd Sat)
 September 3.....Star Party (new moon)
 September 17.....Meeting (3rd Saturday)

The site is simply beautiful, and if the weather conditions are favorable, the sky can be truly stunning. Be sure to bring all of the water that you might need, as this is a 'dry' campground. There are some 'out-house' toilets, however. There is no charge to use this campground.

Do bring a heavy coat, as it can be very cold at night (elev. 8600 feet), even in the summertime. Bring food, a sleeping bag and your favorite telescope and expect to have a grand time. Further discussion will be at this month's club meeting.

New Time For Pre-meeting Dinner

By Chris Clarke

Over the past few months, many members have been discussing the fact that the 5:30 pm dinner time at Home Town Buffet was happening at peak eating time. We would encounter a long wait for seating and a long lines at the buffet. It was decided that we should get there a little earlier to beat the bug rush. At the May meeting, it was discussed and voted for approval by the majority of members present that we would meet for dinner at 5:00 pm. That also gives us a little more time for conversation!

The meeting is still at 7:00 pm.

President's Message

Jerry L. Day
Jerry_day@eee.org

Greetings! As I write this note, the latest celebrity trial has just ended and predictably all headlines seem devoted to the verdict. I can only wonder at a public that considers this earth-shaking and important news.

Meanwhile, a truly remarkable event, the announced discovery of the first potentially rocky planet orbiting another star, passes with little notice or coverage by the press. The discovery is remarkable in that this is the smallest exoplanet discovered to date and marks a giant step towards finding the first Earth-class planets. Although about 152 exoplanets are now known, until now all discovered around 'normal' stars have been Jupiter-class or larger gas giants. (Discovery of several small dead worlds orbiting a burned out star – a pulsar – don't really count towards finding an Earth-like system...)

The new world orbits the red-dwarf star Gliese 876, located 15 light years away, at a distance of only two million miles (0.020 AU) from the star. The planet orbits so close to the parent star that its "year" – one orbit – is only 46 hours long. The planet is about 7 to 9 times the Earth's mass and, if rocky, the planet would be about two times the diameter of the Earth. At this close distance from the star, the planet would be roasting at a temperature between 400° and 750° Fahrenheit.

This discovery also marks the 107th planet discovered by this single team! Due to the team's significant advance in precision of stellar radial velocity measurements (the method used to make the discovery), this is likely to be only the first of many such finds. As stated by team member Jack Lissauer, "The planet we're announcing today is probably the most Earthlike to be discovered since the dawn of history. But it's not likely to hold that title for long."

Closer to home, the club's most recent star party was held Saturday, June 4, at the Johnson Valley site. Despite concern over gusty winds elsewhere in the local area, the evening proved to be clear, calm, and pleasantly warm. A high haze reflected light pollution

from the Inland Empire basin and surrounding communities, making for a bright, poor contrast sky. Still, these were the best conditions we've had for many months and enough deep-sky objects were visible to make for a very enjoyable evening of observing. Conditions were just stable enough to attempt some digital astrophotography – good practice, if nothing else.

The RTMC Astronomy Expo was held over Memorial Day weekend. As in years past, the event was well attended, despite the increased cost of travel due to rising gas prices. The nightly star parties were much more enjoyable this year, as the Moon did not rise until after midnight, unlike last year when the event coincided with the full Moon.

This year I registered as a vendor and set up a booth to be shared with the SBVAA. The booth established a presence for the SBVAA, allowed both Bill Myerchin and I to showcase and sell our photographs, and provided a location for member swap meet sales. Thanks for all that stopped by the booth to help out or to visit.

Looking ahead, our next star party will be held the weekend of July 8-10 at the Grandview campground in the Ancient Bristlecone Pine National Forest, near Big Pine, California. This will be the first of our two annual pilgrimages to this premier dark sky site. For newcomers, Grandview campground is located at about 8,600 feet in elevation. The site is dry, so bring plenty of water. Campsites are primitive – the only facilities are vault toilets. Due to the elevation, sunburn occurs more quickly – don't forget the sunscreen! At elevation, days can be quite warm – and nights can be quite cold – bring appropriate clothing. If this will be your first trip to Grandview, be prepared to enjoy some truly stunning scenery, as well as some of the best dark sky conditions to be found in California.

I hope to see you all at the next meeting and at Grandview! Clear skies.

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

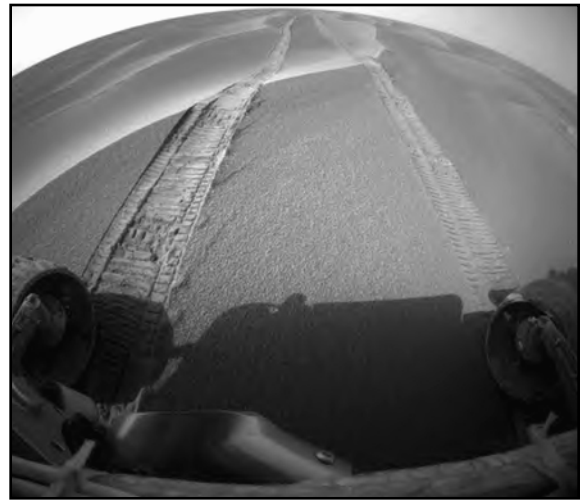
MARS ROVERS UPDATES

SPIRIT UPDATE: Browsing at 'Backstay' - sol 504-510, June 13, 2005

After last week's robotic arm work at "Larry's Outcrop," Spirit headed over to a rock called "Backstay." The rover paused over the weekend to take a closer look at its solar panels and magnets. Spirit arrived at Backstay on Tuesday (June 7, 2005), and has performed a small microscopic image mosaic, rock abrasion tool brush, and Mössbauer spectrometer integration on the rock. Over the weekend (of June 11-12, 2005), the rover will finish robotic arm work and drive on toward the next target.

OPPORTUNITY UPDATE: Opportunity is out! - sol 484-489, June 10, 2005:

Success! Opportunity made forward progress to free itself from the Purgatory Dune! Another exciting achievement for the week was the healthy return of data from the Mini-TES instrument, which the mission team turned back on for the first time in 47 sols. The rover also returned pancam and navcam images, and the team is now planning the rover's next drive on sol 490.



Opportunity looks back at Purgatory Dune with nav camera.

CASSINI UPDATE

One View, Multiple Worlds June 9, 2005

Three very different worlds crowd the frame in this unique view from the Cassini spacecraft, which although partly overexposed, provides a splendid look at several major targets of interest for the mission.

Titan (at the top) has a thick, hazy atmosphere. Cassini has observed it to be a world where complex geological and atmospheric processes are occurring. At 5,150 kilometers (3,200 miles) across, it is Saturn's largest moon, and is the second largest moon in the solar system, after Jupiter's moon Ganymede (5,262 kilometers, or 3,270 miles across).

Tethys (at the bottom) has been battered by impacts over the eons, and some of its many craters are visible in this image. Tethys (1,071 kilometers, or 665 miles across) is one of Saturn's major icy moons, having a density close to that of water. This moon shows evidence that icy tectonic processes have occurred on its frozen surface, such as the immense canyon system called Ithaca Chasma.

Epimetheus (center) is one of Saturn's "ring moons": small, porous bodies that orbit within or just beyond the rings. Cassini acquired the closest-ever view of cratered Epimetheus (116 kilometers, or 72 miles across) in March, 2005. Credit: NASA/JPL/Space Science Institute



CLASSIFIEDS

Classified Ads are free to all members. Please keep the ads short. Before the Submission Deadline, send all ad copy to the SBVC Planetarium, 701 S. Mt. Vernon Ave, San Bernardino, CA 92410 or e-mail Newsletter Editor at: WSMyer@aol.com

The following items have been donated to the club.

One item is a fund-raiser, the others are FREE!

If you're interested, contact Chris Clarke

Work—(909) 384-8539

Home—(909) 875-6694

Orion "Skyview" 90mm Refractor.

Comes with an alt-azimuth mount and aluminum tripod.

There is no finder, but it does come with a 15mm Plossel eyepiece.

\$110.00

Jason 60mm Refractor.

Comes with alt-azimuth mount on wooden tripod.

Has finder, but no eyepieces.

FREE!

26 Year Collection of "Sky and Telescope" Magazines.

January 1965 to December 1990

Missing just a few issues.

Great reference set housed in periodical storage boxes.

FREE!

Ten Year Collection of "Astronomy" Magazines.

1990 to 2000

Nice reference set housed in periodical storage boxes.

FREE!

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 _____

NASA Space Place

Moving a Mountain of a Dish

by Patrick L. Barry

Your first reaction: "That's impossible!" How on earth could someone simply pick up one of NASA's giant Deep Space Network (DSN) antennas—a colossal steel dish 12 stories high and 112 feet across that weighs more than 800,000 pounds—move it about 80 yards, and delicately set it down again?

Yet that's exactly what NASA engineers recently did.

One of the DSN dishes near Madrid, Spain, needed to be moved to a new pad. And it had to be done gingerly; the dish is a sensitive scientific instrument full of delicate electronics. Banging it around would not do.

"It was a heck of a challenge," says Benjamin Saldua, the structural engineer at JPL who was in charge of the move. "But thanks to some very careful planning, we pulled it off without a problem!"

The Deep Space Network enables NASA to communicate with probes exploring the solar system. Because Earth is constantly rotating, a single antenna on the ground can communicate with a probe for only part of the day, when the probe is overhead. By placing large dishes at three locations around the planet—Madrid, California, and Australia—NASA can maintain contact with spacecraft around the clock.

To move the Madrid dish, NASA called in a company from the Netherlands named Mammoet, which specializes in moving massive objects. (Mammoet is the Dutch word for "mammoth.")

On a clear day (bad weather might blow the dish over!), they began to slowly lift the dish. Hydraulic jacks at all four corners gradually raised the entire dish to a height of about 4.5 feet. Then Mammoet engineers positioned specialized crawlers under each corner. Each crawler looks like a mix between a flatbed trailer and a centipede: a flat, load-bearing surface supported by 24 wheels on 12 independently rotating axes, giving each crawler a maximum load of 194 tons!

One engineer took the master joystick and steered the whole package in its slow crawl to the new pad, never exceeding the glacial speed of 3 feet per minute. The four crawlers automatically stayed aligned with each other, and their independently suspended wheels compensated for unevenness in the ground.

Placement on the new pad had to be perfect, and the alignment was tested with a laser. To position the dish, believe it or not, Mammoet engineers simply followed a length of string tied to the pad's center pivot where the dish was gently lowered.

It worked. So much for "impossible."

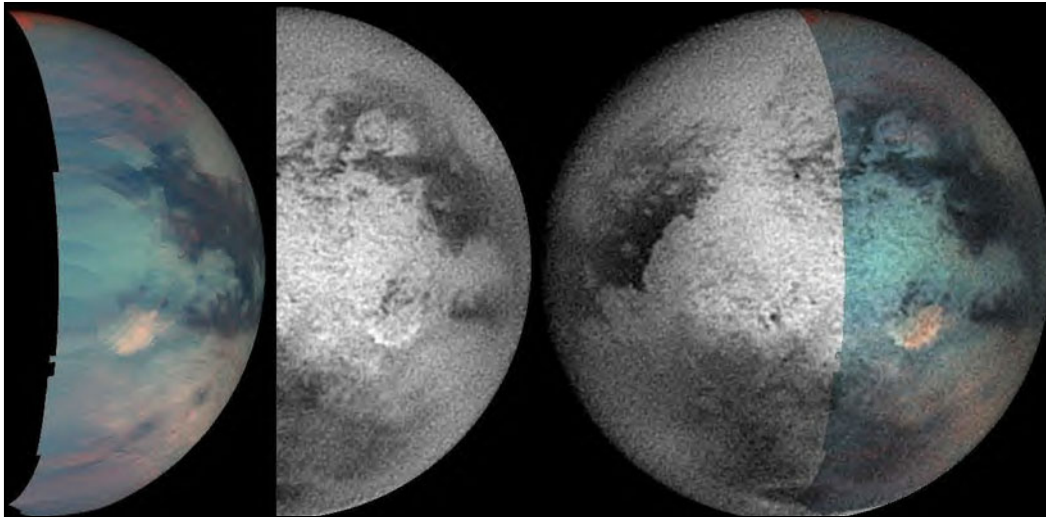
Find out more about the DSN at <http://deepspace.jpl.nasa.gov/dsn/>. Kids can learn about the amazing DSN antennas and make their own "Super Sound Cone" at The Space Place, <http://spaceplace.nasa.gov/en/kids/tmodact.shtml>.



Giant Deep Space Network antenna in Madrid is moved using four 12-axle, 24-wheel crawlers.

Titan's Odd Spot Baffles Scientists

May 25, 2005



The recently discovered infrared-bright spot on Titan is the type of enigmatic feature that is best investigated by putting together as many different types of complementary information as possible. Cassini's varied array of scientific instruments is equal to the task. This montage shows the spot in infrared wavelengths from the visual and infrared mapping spectrometer on the left, from the imaging science

subsystem in the center, and a combination of both data sets on the right.

When put together, the two different views show more than either does separately. The visual and infrared spectrometer team noted the bright region in the image on the left after Cassini's March 31, 2004, Titan encounter. The strange, bright feature to the southeast of Xanadu was flagged as unusual and informally dubbed "The Smile" by imaging team members in December 2004. Together the images show that The Smile (seen by the imaging cameras at 0.938 micron) bounds the infrared "Bright, Red Spot" toward the southeast. The bright region seen in the visible and infrared mapping spectrometer image extends several hundred kilometers to the north and west of The Smile, but does not cover the dark terrain located between this area and Xanadu farther to the northwest. The Smile feature also seems to extend farther west at the south end than the Bright, Red Spot.

It seems clear that both instruments are detecting the same basic feature on Titan's surface. This bright patch may be due to an impact event, landslide, cryovolcanism, or atmospheric processes. Its distinct color and brightness suggest that it may have formed relatively recently.

The false-color image on the left was created using images taken at 1.7 microns (represented by blue), 2.0 microns (green), and 5.0 microns (red). The images that comprise this view were taken by the visual and infrared mapping spectrometer instrument on the April 16, 2005, Titan flyby. Several views were stitched together to make a mosaic. The result was then reprojected to simulate the view from the imaging camera so that the two could be directly compared.

The center image was taken by the narrow-angle camera on December 10, 2004, using a spectral filter centered at 0.938 microns (938 nanometers). The image was taken at a distance of 1.5 million kilometers from Titan and has a pixel scale of 9 kilometers (6 miles) per pixel (see PIA06154 for original image). The image is centered on 8 degrees south latitude, 112 degrees west longitude. This image has been contrast enhanced and sharpened to improve surface feature visibility.

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 and its two onboard cameras were designed, developed and assembled at JPL. The visual and infrared mapping spectrometer team is based at the University of Arizona. The imaging team is based at the Space Science Institute, Boulder, Colo.

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

For additional images visit the VIMS page at <http://wwwvims.lpl.arizona.edu> and the Cassini imaging team homepage <http://ciclops.org> .

Credit:NASA/JPL/University of Arizona/Space Science Institute

Comet 9P/Tempel 1 Impact

July 3, 2005 11:00 PM PDT

THE PLANETARY SOCIETY COMET BASH!

Have an astronomically good time this Independence Day weekend with The Planetary Society's Comet Bash!

- * Witness live images and updates from mission control when NASA's Deep Impact mission slams an 800-pound impactor into Comet Tempel 1.
- * Learn more about comets and the Deep Impact mission from the Deep Impact team and other experts.
- * Hear the latest on the Cosmos 1 solar sail mission, which may be in orbit around Earth that very weekend.

Don't miss this planetary smackdown!

Sunday, July 3, 2005, 7:30 PM -1:00 AM
Haugh Performing Arts Center of Citrus College
1000 W. Foothill Boulevard, Glendora, CA
(just 20 minutes east of Pasadena on the 210)

Tickets can be purchased online at
<http://planetary.org/cometbash.html>

By phone at 626-793-5100,
or at the door.

Prices:

Advance (ordered by June 19)
\$15.00 Members (or 2 for \$25.00)
\$18.00 General (or 2 for \$33)
\$10.00 children or seniors 65 (or 2 for \$15)

At the Door

\$20.00 Adults
\$15.00 Children or Seniors

For questions email us at: tpssl@planetary.org
We look forward to seeing you there!

GET READY FOR VIEWING

NASA's Deep Impact mission will culminate in the crash of a speeding projectile into comet 9P/Tempel 1. And you can witness this first-of-its-kind event and its aftermath.

WHEN:

Impact will occur around 0600 hours Universal Time July 4th, which is 11 p.m. Pacific Daylight Time on July 3rd.

VIEWING DEEP IMPACT WITH A TELESCOPE

To get a good look at Comet Tempel 1, a telescope is the way to go. Any telescope design will do - refractor, reflector, or Cassegrain, but the bigger its optics, the more vivid the image will be. From a dark-sky site, a telescope with 4" optics should begin to reveal the comet's hazy glow. You'll have better luck with an 8" or larger telescope, which will be a reflector or Schmidt-Cassegrain.

Moonlight will wash out the comet from June 8 to 23, so plan on starting your observations on the 24th.

TIPS AND TRICKS FOR VIEWING

*** Allow Time For Your Eyes to Dark-Adapt ***

Good dark adaptation will be important for seeing the "fuzziness" around what might otherwise look like a plain-old star.

Once your eyes are dark-adapted, avoid looking at bright light sources as they will instantly spoil your night vision. To see what you're doing at the telescope or to read your star map, use a flashlight that emits red light, the dimmer the better.

*** Use Averted Vision and the Jiggle Technique ***

Instead of looking directly at the comet, look off a little to one side in the eyepiece's field of view. The edge of the eye's retina is more sensitive to dim light than the center.

Another trick is to tap the side of the telescope tube lightly, just enough to jiggle the field of view. When you set the whole starfield in motion this way, the comet's fuzzy form may emerge from the surrounding stellar pinpoints.

*** Drape a Dark Cloth Over Your Head ***

Block stray light from entering your eye by draping a dark cloth - such as a towel over your head and the eyepiece(s). Or at the least, cup your hand around your eye and the eyepiece - without touching the eyepiece.

GRANDVIEW I--2005

Star Party: July 8-9th, 2005

See Tom Lawson, Star Party Coordinator

**Grandview-July 8-9, 2005 Discussion
Comet 9P/Tempel 1 Impact, July 3, 2005**

Astro Video will be shown

Meeting: June 18, 2005-7:00PM

“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



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393 West La Cadena Dr
Ste 17
Riverside, Ca 92501