



# THE OBSERVER

SAN BERNARDINO VALLEY AMATEUR ASTRONOMERS

Member THE ASTRONOMICAL LEAGUE

*"Celebrating Forty-Eight Years of Amateur Astronomy"*

VOLUME #48 ISSUE #12

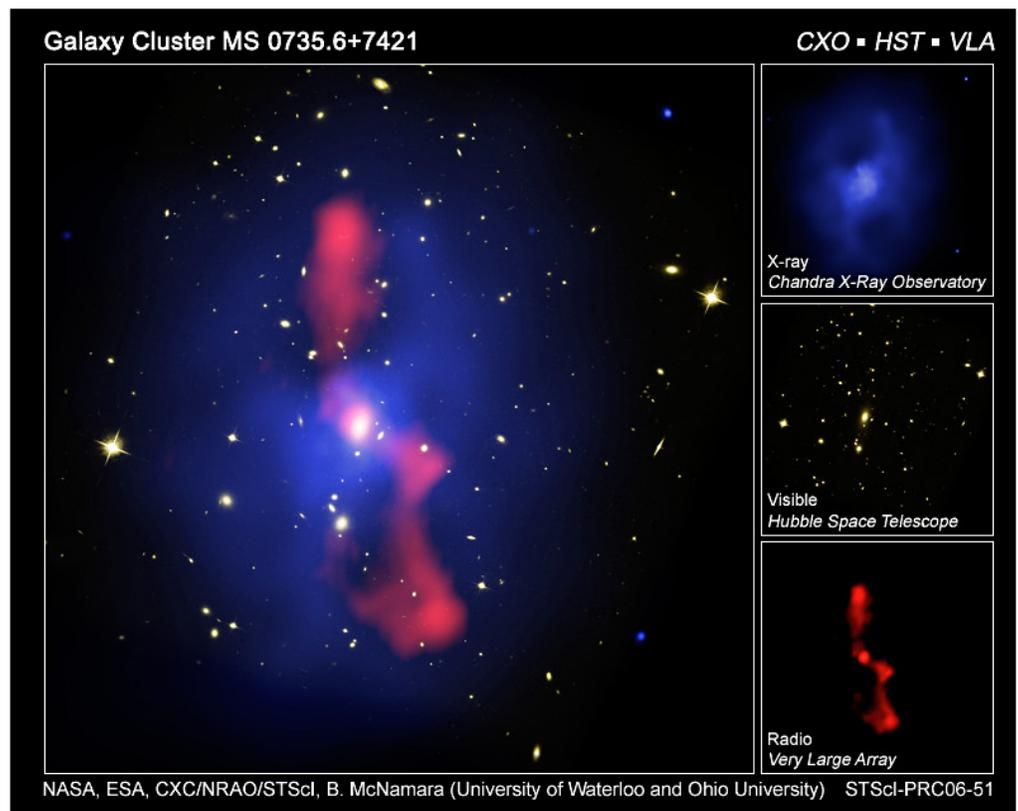
DECEMBER 2006

## Holiday Get-Together December 9, 2006: 2PM-6PM Roberto's Italian Dining & Pizza, Highland, CA

### MS 0735

This is a composite image of galaxy cluster

MS0735.6+7421, located about 2.6 billion light-years away in the constellation Camelopardalis. The image represents three views of the region that astronomers have combined into one photograph. The optical view of the galaxy cluster, taken by the Hubble Space Telescope's Advanced Camera for Surveys in February 2006, shows dozens of galaxies bound together by gravity. Diffuse, hot gas with a temperature of nearly 50 million degrees permeates the space between the galaxies. The gas emits X-rays, seen as blue in the image taken with the Chandra X-ray Observatory in November 2003. The X-ray portion of the image shows enormous holes or cavities in the gas, each roughly 640,000 light-years in diameter — nearly seven times the diameter of the Milky Way. The cavities are filled with charged particles gyrating around magnetic field lines and emitting radio waves shown in the red portion of image taken with the Very Large Array telescope in New Mexico in October 2004. The cavities were created by jets of charged particles ejected at nearly light speed from a supermassive black hole weighing nearly a billion times the mass of our Sun lurking in the nucleus of the bright central galaxy. The jets displaced more than one trillion solar masses worth of gas. The power required to displace the gas exceeded the power output of the Sun by nearly ten trillion times in the past 100 million year....NASA



# 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) 384-8539-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](http://www.sbvaa.org)

# SBVAA

## CALENDER OF EVENTS 2006

Meetings held at the  
 San Bernardino County Museum  
 For information, call Chris Clarke at (909)  
 384-8539

December 9.....Holiday Get-Together  
 (2nd Saturday)

December 16.....Star Party

Note: New Calender will be published in  
 January newlsetter.

## Holiday Get-Together

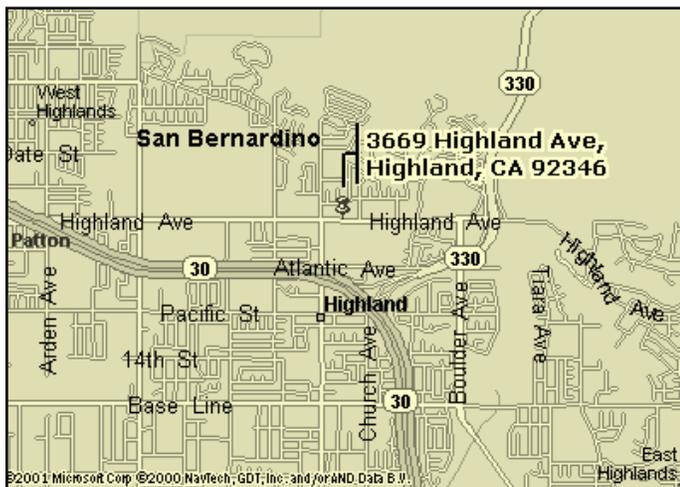
by Tom Lawson

This years Holiday Get-Together is going to be held at Robert's Italian Restaurant in Highland California. The Date and Time December 9th between 2 and 6 pm.

Roberto's Italian Dining & Pizza  
 3669 East Highland Ave.  
 Highland, CA 92346

909-862-8999

<http://www.robertositaliandining.com/>



## Holiday Get-Together

**Dec 90, 2006  
 2PM-6PM**

**Please bring  
 your inexpensive  
 Not Junk**

**“White Elephant Gift\*”  
 To exchange!!!**

\* Also known as Yankee Swap' (New England), Kris Kringle, Dirty Santa, GiftWar, Grinch Exchange, Rob Your Neighbor, Nasty Christmas, Chinese Gift Exchange, and Thieving Secret Santa.

**Nothing over  
 \$25.00**

## President's Message

By Martin L. Carey

[martincarey@sbcglobal.net](mailto:martincarey@sbcglobal.net)

This winter season the nights of the bright stars are back again. Tonight even with a full moon, we have many 1st magnitude stars, including Aldebaran, Betelgeuse, Rigel, Capella, and later on, Sirius. The winter sky with those bright stars seems closer and more friendly than the summer Milky Way, and perhaps because many of the objects are actually closer to us than the central bulge area. The cold, dry air is also very clear.

The holidays are also a good time to warn any and all who will listen, of the dreaded trash gift telescopes. Spindly legs, bad optics, and lowered spirits—members, do your duty! Warn, and then invite them to a star party.

Then there was the great plan to go out to visit the Riverside club's observing site. I had a fine time driving out there. Trouble was, I didn't remember the way, but thought I knew it. After an hour of meandering passes around the Landers back roads, I got stopped by a Sheriff who thought I was drunk. He gave me some directions, and then started following me. I started to wonder if I was weaving. He finally turned off, so I decided to get home before I got into worse trouble.

Our holiday party at Roberto's is always fun. We used to call it a white elephant gift exchange, and some of the gifts were only for laughs. It has evolved into a regular gift exchange, and last year worked out very well with a large group. The identity of the new Santa is still a mystery, however.

## Planetary Society's SOS

NASA's acclaimed Science Program -- the "crown jewel" of the U.S. space agency -- is in danger!

If we don't act now, space science in NASA will be gutted and crucial missions of exploration will be cancelled. It could be decades

before we see another string of successes like the Hubble Space Telescope, the Mars Exploration Rovers, Cassini-Huygens, and Stardust.

The U.S. administration's proposed budget for 2007 drastically cuts NASA's science programs. Even now, before the cuts have been approved, NASA is eliminating funding for a mission to explore the ice world of Europa.

### Join the Fight for Science and Exploration!

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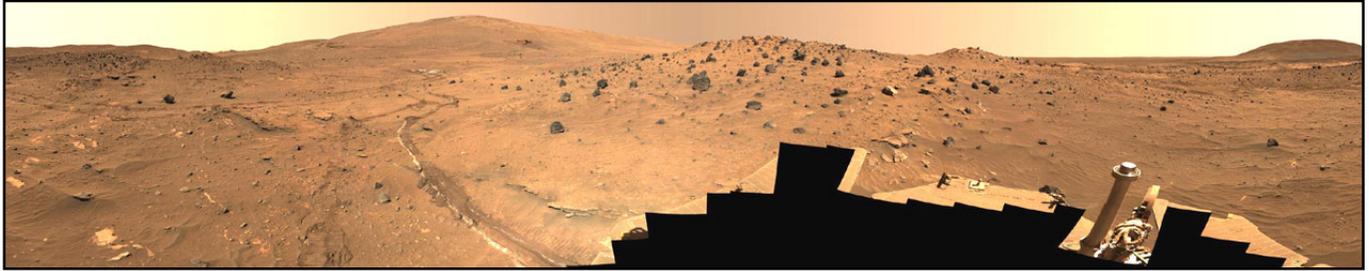
Demonstrate your support for NASA space science by signing the petition to President George W. Bush! Stop the U.S. Administration from foisting a disastrous anti-science, antiexploration agenda on NASA.

For more information:

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



# MARS ROVERS UPDATES



## 'McMurdo' Panorama from Spirit's 'Winter Haven'

This 360-degree view, called the "McMurdo" panorama, comes from the panoramic camera (Pancam) on NASA's Mars Exploration Rover Spirit. From April through October 2006, Spirit has stayed on a small hill known as "Low Ridge." There, the rover's solar panels are tilted toward the sun to maintain enough solar power for Spirit to keep making scientific observations throughout the winter on southern Mars. This view of the surroundings from Spirit's "Winter Haven" is presented in approximately true color.

## OPPORTUNITY UPDATE: Opportunity Tests New Driving Software and Helps Its Sister Spacecraft - sol 1002-1015, December 04, 2006:

Opportunity is healthy and making progress imaging "Victoria Crater." Sol 1002 began with a short drive to the edge of "Cape St. Mary" in order to take better images of the northeast side of "Cape Verde."

On Sols 1005 and 1006 (Nov. 21 and 22, 2006), Opportunity participated in efforts to recover communications with NASA's Mars Global Surveyor orbiter, which had not communicated with Earth for more than two weeks at that point. Mars Global Surveyor was sent a command in the blind to try to communicate with Opportunity via their UHF radios on each of these two sols. Alas, Opportunity never received any signal from the orbiter on either attempt.

# CASSINI UPDATE

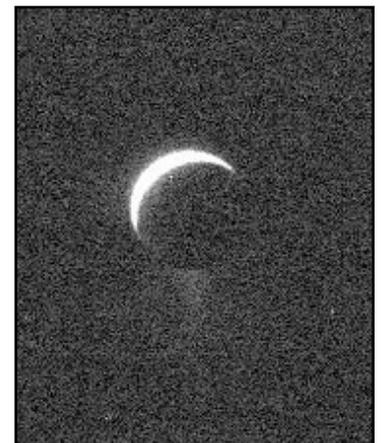
## Out of the Noise December 5, 2006

A ghostly view of Enceladus reveals the specter of the moon's icy plume of fine particles. Scientists continue to monitor the plume, where mission planning allows, using the Cassini spacecraft's imaging cameras.

This view looks toward northern latitudes on the trailing hemisphere of Enceladus (505 kilometers, or 314 miles across). North is up.

The image was taken with the Cassini spacecraft narrow-angle camera using a spectral filter sensitive to wavelengths of ultraviolet light centered at 338 nanometers on Oct. 31, 2006. Cassini was then at a distance of approximately 1.4 million kilometers (900,000 miles) from Enceladus and at a Sun-Enceladus-spacecraft, or phase, angle of 148 degrees. Image scale is 8 kilometers (5 miles) per pixel.

Credit: NASA/JPL/Space Science Institute



# STS-116: Discovery



These seven astronauts take a break from training to pose for the STS-116 crew portrait. Scheduled to launch aboard the Space Shuttle Discovery are, front row (from the left), astronauts William A. Oefelein, pilot; Joan E. Higginbotham, mission specialist; and Mark L. Polansky, commander. On the back row (from the left) are astronauts Robert L. Curbeam, Nicholas J.M. Patrick, Sunita L. Williams and the European Space Agency's Christer Fuglesang, all mission specialists. Williams will join Expedition 14 in progress to serve as a flight engineer aboard the International Space Station. The crewmembers are attired in training versions of their shuttle launch and entry suits. Photo credit: NASA

**Orbiter: Discovery**  
**Mission: Space Station Assembly Building 12A.1**  
**Payload: P5 Integrated Truss Segment**  
**Launch Date: Dec. 7, 2006**  
**Launch Time: 9:35 p.m. EST**  
**Launch Pad: 39B**  
**Landing Date: Dec. 19, 2006**  
**Landing Time: 4:35 p.m. EST**  
**Mission Duration: 12 days**



## 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 \$34.00 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 \_\_\_\_\_

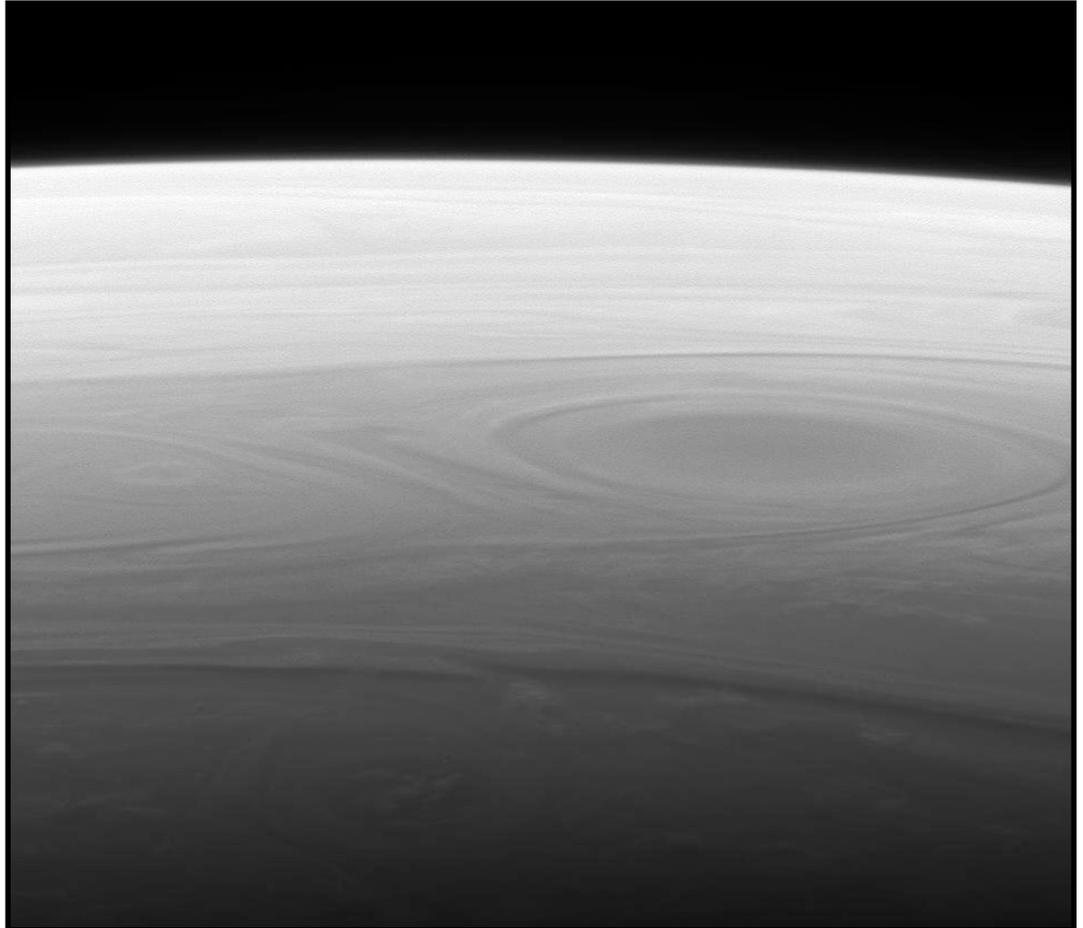
## View Out the Window      December 4, 2006

The Cassini spacecraft returns a grand and unique vista of Saturn's horizon, reminiscent of the views of our own planet from Earth orbit.

Similar to the view from *Swirling With Shadows*, the high clouds in the lower part of the scene cast shadows toward the bottom of the image.

This view was obtained from about 44 degrees above the ringplane.

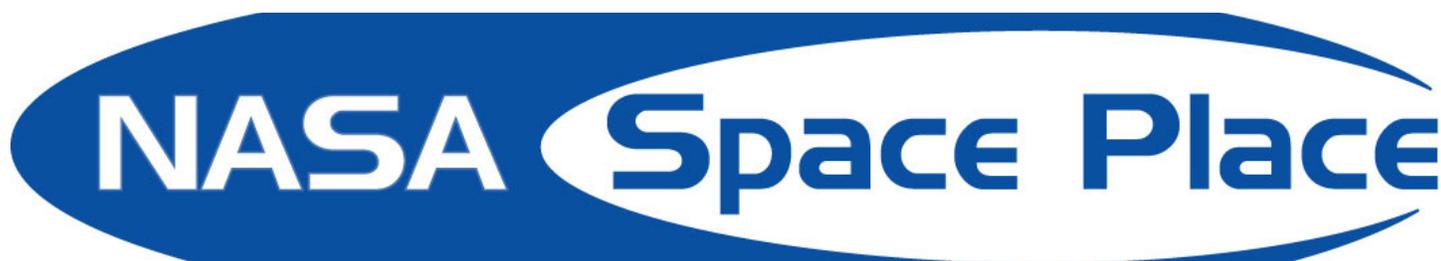
The image was taken with the Cassini spacecraft narrow-angle camera using a spectral filter sensitive to wavelengths of infrared light centered at 938 nanometers on Oct. 30, 2006. Cassini was then at a distance of approximately 1.4 million kilometers (900,000 miles) from Saturn and at a Sun-Saturn-spacecraft, or phase, angle of 150 degrees. Image scale is 8 kilometers (5 miles) per pixel.



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 imaging operations center is based at the Space Science Institute in Boulder, Colo.

For more information about the Cassini-Huygens mission visit <http://saturn.jpl.nasa.gov> . The Cassini imaging team homepage is at <http://ciclops.org> .

Credit: NASA/JPL/Space Science Institute



## Martian Devils by Dr. Tony Phillips

Admit it. Whenever you see a new picture of Mars beamed back by Spirit or Opportunity, you scan the rocks to check for things peeking out of the shadows. A pair of quivering green antennas, perhaps, or a little furry creature crouched on five legs...? Looking for Martians is such a guilty pleasure.

Well, you can imagine the thrill in 2004 when scientists were checking some of those pictures and they did see something leap out. It skittered across the rocky floor of Gusev Crater and quickly disappeared. But it wasn't a Martian; Spirit had photographed a dust devil!

Dust devils are tornadoes of dust. On a planet like Mars which is literally covered with dust, and where it never rains, dust devils are an important form of weather. Some Martian dust devils grow almost as tall as Mt. Everest, and researchers suspect they're crackling with static electricity—a form of "Martian lightning."

NASA is keen to learn more. How strong are the winds? Do dust devils carry a charge? When does "devil season" begin—and end? Astronauts are going to want to know the answers before they set foot on the red planet.

The problem is, these dusty twisters can be devilishly difficult to catch. Most images of Martian dust devils have been taken by accident, while the rovers were looking for other things. This catch-as-catch-can approach limits what researchers can learn.

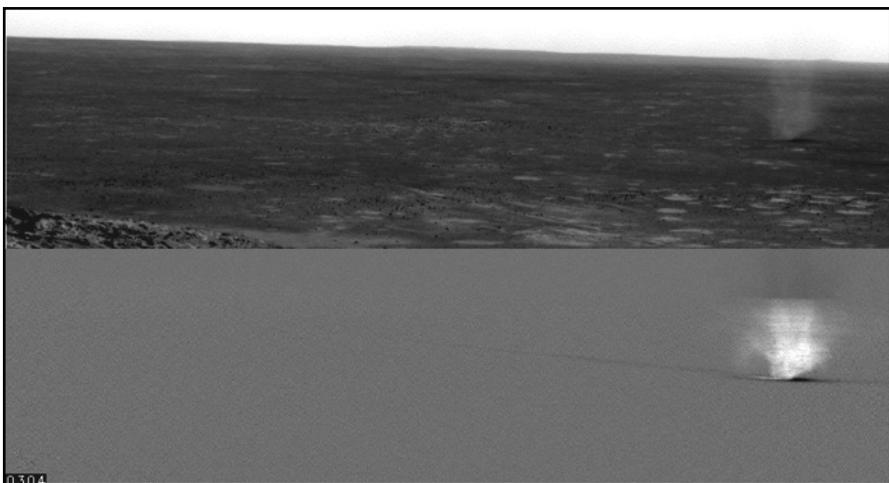
No more! The two rovers have just gotten a boost of artificial intelligence to help them recognize and photograph dust devils. It comes in the form of new software, uploaded in July and activated in September 2006.

"This software is based on techniques developed and tested as part of the NASA New Millennium Program's Space Technology 6 project. Testing was done in Earth orbit onboard the EO-1 (Earth Observing-1) satellite," says Steve Chien, supervisor of JPL's Artificial Intelligence Group. Scientists using EO-1 data were especially interested in dynamic events such as volcanoes erupting or sea ice breaking apart. So Chien and colleagues programmed the satellite to notice change. It worked beautifully: "We measured a 100-fold increase in science results for transient events."

Now that the techniques have been tested in Earth orbit, they are ready to help Spirit and Opportunity catch dust devils—or anything else that moves—on Mars.

"If we saw Martians, that would be great," laughs Chien. Even scientists have their guilty pleasures.

Find out more about the Space Technology 6 "Autonomous Sciencecraft" technology experiment at [nmp.nasa.gov/st6/TECHNOLOGY/sciencecraft\\_tech.html](http://nmp.nasa.gov/st6/TECHNOLOGY/sciencecraft_tech.html), and the use of the technology on the Mars Rovers at [nmp.nasa.gov/TECHNOLOGY/infusion.html](http://nmp.nasa.gov/TECHNOLOGY/infusion.html). Kids can visit [spaceplace.nasa.gov/en/kids/nmp\\_action.shtml](http://spaceplace.nasa.gov/en/kids/nmp_action.shtml) and do a New Millennium Program-like test at home to see if a familiar material would work well in space.



The top half of this image is part of a series of images of a passing dust devil on Mars caught by Spirit. In the bottom half, the image has been filtered to remove everything that did not change from one image to the other. Notice the faint track left by the dust devil. Credit NASA/JPL/Mark T. Lemmon, Univ. of Arizona Lunar and Planetary Laboratory.

**STAR PARTY: OWL CANYON CAMPGROUND  
DECEMBER 16, 2006**

**Note: New Calender of Events will appear in January, 2006 Newsletter**

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

**Holiday Get-Together Party**

**December 9, 2006**

**2:00PM--6:00PM**

**Roberto's Italian Dining and Pizza**

**Highland, CA**

**Gift Exchange (\$25.00)**



**SAN BERNARDINO VALLEY  
AMATEUR ASTRONOMERS**

**PO BOX 9461**

**San Bernardino, CA 92427**