



THE OBSERVER

SAN BERNARDINO VALLEY AMATEUR ASTRONOMERS

Member THE ASTRONOMICAL LEAGUE

"Celebrating Forty-Eight Years of Amateur Astronomy"

VOLUME #48 ISSUE #01

January 2006

Member's Telescope Show and Tell and ASTRO-VIDEO Presentation

NASA's Comet Tale Draws to a Successful Close in Utah Desert 01.15.06

NASA's Stardust sample return mission returned safely to Earth when the capsule carrying cometary and interstellar particles successfully touched down at 2:10 a.m. Pacific time (3:10 a.m. Mountain time) in the desert salt flats of the U.S. Air Force Utah Test and Training Range.

"Ten years of planning and seven years of flight operations were realized early this morning when we successfully picked up our return capsule off of the desert floor in Utah," said Tom Duxbury, Stardust project manager at NASA's Jet Propulsion Laboratory, Pasadena, Calif. "The Stardust project has delivered to the international science community material that has been unaltered since the formation of our solar system."

Stardust released its sample return capsule at 9:57 p.m. Pacific time (10:57 p.m. Mountain time) last night. The capsule entered the atmosphere four hours later at 1:57 a.m. Pacific time (2:57 a.m. Mountain time). The drogue and main parachutes deployed at 2:00 and 2:05 a.m. Pacific time, respectively (3:00 and 3:05 a.m. Mountain time).

"I have been waiting for this day since the early 1980s when Deputy Principal Investigator Dr. Peter Tsou of JPL and I designed a mission to collect comet dust," said Dr. Don Brownlee, Stardust principal investigator from the University of Washington, Seattle. "To see the capsule safely back on its home planet is a thrilling accomplishment."

The sample return capsule's science canister and its cargo of comet and interstellar dust particles will be stowed inside a special aluminum carrying case to await transfer to the Johnson Space Center, Houston, where it will be opened. NASA's Stardust mission traveled 2.88 billion miles during its seven-year round-trip odyssey. Scientists believe these precious samples will help provide answers to fundamental questions about comets and the origins of the solar system.

NASA's Jet Propulsion Laboratory, Pasadena, Calif., manages the Stardust mission for NASA's Science Mission Directorate, Washington. Lockheed Martin Space Systems, Denver, developed and operated the spacecraft. **SEE THE COLOR PDF NEWSLETTER FOR MORE INFORMATION ON THE STARDUST PROJECT.**



MEETING: January 21, 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

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SBVAA

CALENDER OF EVENTS 2006

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

January 21.....Meeting (3rd Saturday)
 January 28.....Star Party
 February 18.....Meeting (3rd Saturday)
 February 25.....Star Party
 March 18.....Meeting (3rd Saturday)
 March 25.....Star Party
 April 15.....Meeting (3rd Saturday)
 April 29.....Star Party

January Meeting: Member Show and Tell, and Astro-Video

By Martin L. Carey

Our featured speakers this month are the illustrious members of our club who have projects they are brave enough to show the rest of us. Steve Miller is going to show us how he built his super planetary 8" reflector, his first effort in telescope making. Others are being negotiated with to share their creations, so the complete list is not yet available. So, if it's astronomy-related, bring it up and talk about it. Oh, expect some mild heckling, also a club tradition.

Holiday Get-Together: December, 2005



President's Message

By Martin L. Carey
martincarey@sbcglobal.net

This season's winter holiday part was one of our best ever, with nearly forty members present, lots of food and gifts, and plenty of gab. Santa seems to have lost weight, however. Our gift exchange started out as usual, very polite, too polite. Jerry Day sparked a new attitude when he snatched away someone's cherished acquisition, and things got livelier after that. I noticed that some unusual gifts were stolen and prized. Overall, it was very fun, and a great club tradition.

The dark of the moon weekend fell on New Year's weekend, so we figured that no one would want to drive out to the far desert then. Sharon and I planned a moon and planet party for the following weekend at our house, with about a dozen coming for some viewing of Saturn, the moon, Mars, and some brighter deep sky objects such as M42. Steve Miller brought his 8" planetary reflector, along with Chris Clarke and his Questar, Jim and his 3" apo refractor, along with Tom and his 5" Celestron. Jerry and Kim, John Simpson the loud music man, and Mike and Irene Oliver (bearing Coco's pies) came too. Our other Mike brought some homemade gourmet pizza. Wow, we know how to party! Hopefully, all the above information is correct. Oh yes, we actually did some viewing of the aforementioned celestial objects, but mostly after we filled our bellies. Raised blood sugar increases visual acuity, I'm sure.

Jerry Day showed us a new photo album with 11"x17" prints of his ghost town night shots, which were quite impressive at that scale. Hopefully we'll see them again in better light, maybe on a large screen.

The seeing was fairly good, and got better towards the end of the evening. Saturn showed two bands and its dusky polar cap in moments of steadiness. Cassini's division could be seen circling the whole planet in all the scopes. Mars still had a very faint ice cap visible, and some limb brightening, but the size of the planet's disk is shrinking fast.

We hope to have these planet parties regularly, maybe once per quarter. They are easy and fun to do, and now and then the club might spring for the pizza. Join us next time.

A New Year for Outreaches!

By Chris Clarke

As the new year begins, we have some outreaches to perform. On Monday evening, January 23, we will be at Smiley School in Redlands and on Tuesday, February 7, we'll return for our 'annual visit' to Kingsbury School, also in Redlands. At Smiley, we'll set up at 6:00 and from 6:30 'til 8:00 pm entertain the students and their parents. We'll have Saturn (just a few days before opposition—at its best for the year), plus M42, the Pleiades and maybe a few other 'goodies,' depending on seeing conditions.

To get to the school, take I10 East and exit at Tennessee and turn right onto Tennessee. Continue until Tennessee becomes San Mateo (at Brookside). Go through Brookside, continue on through Olive Ave. and Fern Ave. until Cypress. Turn right on Cypress. The school is on the corner of San Mateo and Cypress. Turn right into the first driveway. Vehicles can be driven into first gate on right. Park between the playground and playing fields at tree rings. From I10 West, exit at Cypress Ave. Continue until San Mateo. Through San Mateo, right into first driveway as already described.

To get to Kingsbury School, take the I10 to the Orange St. exit. Go south on Orange and it becomes Cajon St. The school (at 600 Cajon St.) is about a mile south of the freeway near the corner of Cajon and Cypress, on the right side. We will set up at 6:00 pm on the lawn near the auditorium. Viewing will last from 6:30 to 8:00. We'll have Saturn and a lovely gibbous moon to look at. We've been doing this event for several years now in tandem with their Science Night and they really enjoy having us there.

We always have a great time doing these outreaches, and it is most satisfying to share our telescopes and provide views of the heavens with those who have never had that opportunity. Do you remember your first look at Saturn? Help make that experience happen for someone else, especially a child---they will never forget it!

If you have any questions, just call me at work (909) 384-8539 or home (909) 875-6694.

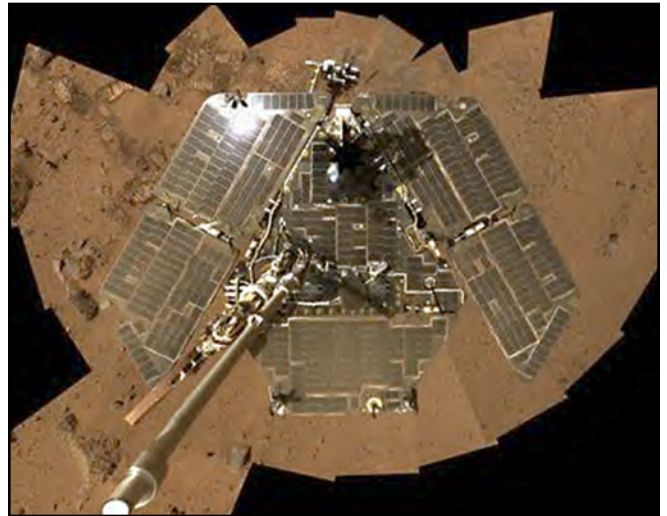
MARS ROVERS UPDATES

SPIRIT: Still Shining After All This Time

The most recent self-portrait of NASA's Mars Exploration Rover Spirit shows the solar panels still gleaming in the Martian sunlight and carrying only a thin veneer of dust two years after the rover landed and began exploring the red planet. Spirit's panoramic camera took this mosaic of images on the 586th sol, or Martian day, of exploration (Aug. 27, 2005), as part of a mammoth undertaking that resulted in the largest panorama ever acquired by Spirit

This image is a subset of that panorama, showing just the rover. The vertical projection used here produces the best view of the rover deck itself, though it distorts the ground and antennas somewhat.

This image is an approximate true-color rendering that combines images taken through the camera's 600-nanometer, 530-nanometer and 480-nanometer filters. NASA/JPL-Caltech/Cornell



OPPORTUNITY UPDATE: Putting the Arm on 'Ted' - sol 681-694, Jan 06, 2006:

The rover team has kept Opportunity productive while engineers continue to evaluate the best posture for carrying the robotic arm when the rover resumes driving. The arm's position can be manipulated for full use of all the tools on the arm despite symptoms that suggest a broken wire in the winding of a shoulder-joint motor of the arm. The choice of a new position for carrying the arm during drives is a precaution against having the arm stuck in a stowed position if that motor becomes unusable in the future.

Opportunity's recent activities have included imaging of Jupiter, observing the atmosphere on every sol, progress on a multi-filter panorama of "Erebus Crater," and long integrations with the Mössbauer spectrometer and alpha particle X-ray spectrometer on targets "Ted" and "Hunt."

CASSINI UPDATE

Huygens Landing: One Year Later January 12, 2006 (Source: ESA)

One year ago this week, on January 14, 2005, the European Space Agency's (ESA) Huygens probe reached the upper layer of Titan's atmosphere and landed on the surface after a parachute descent 2 hours and 28 minutes later.

As part of the joint NASA/ESA/ASI mission to Saturn and its moons, the Huygens probe was sent from the Cassini spacecraft to explore Titan, Saturn's largest moon. Titan's organic chemistry may be like that of the primitive Earth around 4000 million years ago, and it may hold clues about how life began on our planet.

The Huygens mission has been an outstanding engineering and scientific success, one of the most complex and scientifically rewarding space missions to date.

The touchdown on the surface of Titan marked the farthest a man-made spacecraft has successfully landed away from Earth.

Clear images of the surface of Titan were obtained below an altitude of 40 kilometers (25 miles) -- revealing an extraordinary world that resembled Earth in many respects, especially in meteorology, geomorphology and fluvial activity, but with different ingredients. The images show strong evidence for erosion due to liquid flows, possibly methane.



What Do You Expect?

By Martin L. Carey

December's newsletter featured Dr. Seth Shostak, the senior astronomer at the SETI Institute (Search for Extraterrestrial Intelligence), taking to task an unnamed intelligent design (ID) advocate for misstating the methods and goals of the SETI program. He also criticized the general assumptions of ID. I enjoyed his witty style and read several other of his articles linked on the SETI website.

The article also breaks a club tradition. Our late great leader, Dave Garcia used to say, "No talk of politics or religion in our club." Well, we loved Dave, but many a night out under the stars, we broke that rule. So, if we are going to have a debate on these pages, that article makes a good start.

Shostak is precise in clarifying what SETI is searching for and how. The anonymous ID advocate had stated that SETI was searching for complexity as a sign of intelligent life, just as the ID searchers are. Shostak argues very convincingly that SETI is looking for only artificial, out-of-context signals, since a complex signal is much harder to pick out from all the background noise of the cosmos. Besides, their instruments are not set up for detecting complex signals, so a nuanced message is out of the question.

William Dembski, mathematician and philosopher of science at the center of the ID movement, stated that if SETI scientists detected an alien signal containing a string of prime numbers, as they did in Sagan's book "Contact," they would surely take it as a sign of intelligent life.

Regardless of whether or not SETI is looking for such signals, Dembski's statement is self evidently true.

Too bad Shostak doesn't name the ID writer he cites. Oh well.

So, Dr. Shostak isn't looking for gods, just moderately bright aliens who seek attention in loud, crude ways, on a convenient bandwidth and frequency for our limited instruments. I wonder though, what if the more intelligent preferred to send out more complex signals, deliberately, to avoid more primitive minds such as ours? This is not flattering to us, but try to imagine this for a moment.

After all, if they live in the vicinity, they might have picked up on what kind of delightful neighbors we would make. A higher intellect would tend to find out about us first. Not with flying saucers, that's likely rubbish, but with some good listening. Their signals might sound like the clutter and noise that SETI wants to filter out, while other members of the advanced club would have superior detector and filter technology to pick out the information. Of course, this is absurd for those who can only imagine alien intelligence that approximates our own.

Unfortunately, we tend to find only what we expect to find; perceptions are shaped by expectations. If extreme intelligence is unknowable, why bother?

For Shostak the "junk, redundancy and inefficiency" he sees in living systems meet his low expectations for a purely natural process, a happy accumulation of fortunate accidents. For the ID believer, a living creature is a thing of beauty to provoke awe, and contains information that is a sign of intelligence—a designer. Hence, the higher expectations of what a cosmic communiqué might contain. Here are two different sets of expectations, coming from radically differently worldviews. They can live together on the same planet, if the tussle over turf stays a dull roar.

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 _____

The Stardust Mission

Stardust is the first U.S. space mission dedicated solely to the exploration of a comet, and the first robotic mission designed to return extraterrestrial material from outside the orbit of the Moon.

The Stardust spacecraft was launched on February 7, 1999, from Cape Canaveral Air Station, Florida, aboard a Delta II rocket. The primary goal of Stardust is to collect dust and carbon-based samples during its closest encounter with Comet Wild 2 - pronounced "Vilt 2" after the name of its Swiss discoverer - is a rendezvous scheduled to take place in January 2004, after nearly four years of space travel.

Additionally, the Stardust spacecraft will bring back samples of interstellar dust, including recently discovered dust streaming into our Solar System from the direction of Sagittarius. These materials are believed to consist of ancient pre-solar interstellar grains and nebular that include remnants from the formation of the Solar System. Analysis of such fascinating celestial specks is expected to yield important insights into the evolution of the Sun its planets and possibly even the origin of life itself.

Trajectory

In order to meet up with comet Wild 2, the spacecraft made three loops around the Sun. On the second loop, its trajectory intersected the comet. During the meeting, Stardust performed a variety of tasks including reporting counts of comet particles encountered by the spacecraft with the Dust Flux Monitor, and real-time analyses of the compositions of these particles and volatiles taken by the Comet and Interstellar Dust Analyzer. Using a substance called aerogel, Stardust captured these samples and stored them for safe keep on its long journey back to Earth. This silica-based material has been inserted within the Aerogel Collector Grid, which is similar to a large tennis racket. Not until January 2006 will Stardust and its precious cargo return by parachuting a reentry capsule weighing approximately 125 pounds to the Earth's surface.

NASA's Discovery Program

Stardust is the fourth NASA Discovery mission to be chosen and follows on the heels of Mars Pathfinder, the Near Earth Asteroid Rendezvous mission and the Lunar Prospector mission. Discovery is an ongoing program that is intended to offer the scientific community opportunities to accomplish frequent, high quality scientific investigations using innovative and efficient management approaches. It seeks to keep performance high and expenses low by using new technologies and strict cost caps.

The Stardust Mission is a collaborative effort between NASA, university and industry partners. See the Team page for more details.

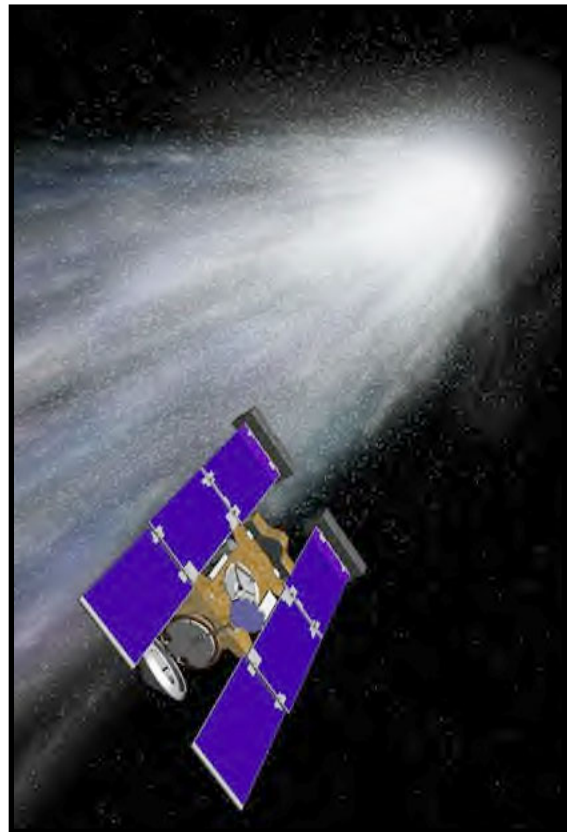
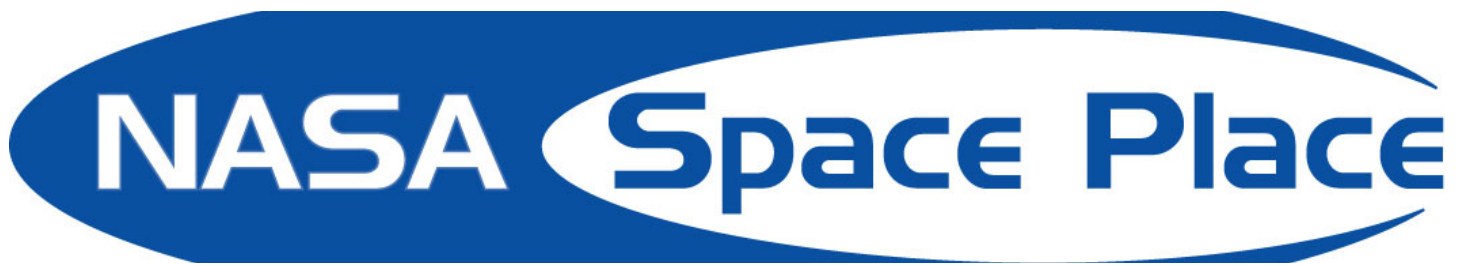


Image above: An artist's concept of Stardust encounter with comet Wild 2. Image credit: NASA/JPL.

More information about Stardust is available online at <http://stardust.jpl.nasa.gov/index.html>.



Snowstorm on Pluto

by Dr. Tony Phillips

There's a nip in the air. Outside it's beginning to snow, the first fall of winter. A few delicate flakes tumble from the sky, innocently enough, but this is no mere flurry.

Soon the air is choked with snow, falling so fast and hard it seems to pull the sky down with it. Indeed, that's what happens. Weeks later when the storm finally ends the entire atmosphere is gone. Every molecule of air on your planet has frozen and fallen to the ground.

That was a snowstorm—on Pluto.

Once every year on Pluto (1 Pluto-year = 248 Earth-years), around the beginning of winter, it gets so cold that the atmosphere freezes. Air on Pluto is made mainly of nitrogen with a smattering of methane and other compounds. When the temperature dips to about 32 K (-240 C), these molecules crystallize and the atmosphere comes down.

"The collapse can happen quite suddenly," says Alan Stern of the Southwest Research Institute. "Snow begins to fall, the surface reflects more sunlight, forcing quicker cooling, accelerating the snowfall. It can all be over in a few weeks or months."

Researchers believe this will happen sometime during the next 10 to 20 years. Pluto is receding from the warmth of the Sun, carried outward by its 25% elliptical orbit. Winter is coming.

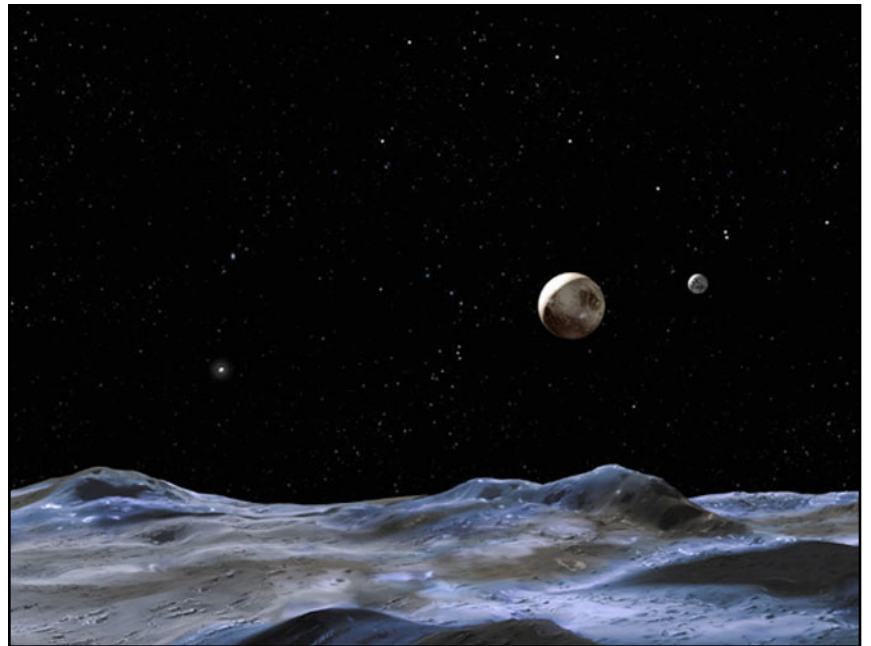
So is New Horizons. Stern is lead scientist for the robotic probe, which left Earth in January bound for Pluto. In 2015 New Horizons will become the first spacecraft to visit that distant planet. The question is, will it arrive before the snowstorm?

"We hope so," says Stern. The spacecraft is bristling with instruments designed to study Pluto's atmosphere and surface. "But we can't study the atmosphere if it's not there." Furthermore, a layer of snow on the ground ("probably a few centimeters deep," estimates Stern) could hide the underlying surface from New Horizon's remote sensors.

Stern isn't too concerned: "Pluto's atmosphere was discovered in 1988 when astronomers watched the planet pass in front of a distant star—a stellar occultation." The star, instead of vanishing abruptly at Pluto's solid edge, faded slowly. Pluto was "fuzzy;" it had air. "Similar occultations observed since then (most recently in 2002) reveal no sign of [impending] collapse," says Stern. On the contrary, the atmosphere appears to be expanding, puffed up by lingering heat from Pluto's waning summer.

Nevertheless, it's a good thing New Horizons is fast, hurtling toward Pluto at 30,000 mph. Winter. New Horizons. Only one can be first. The race is on....

Find out more about the New Horizons mission at <http://pluto.jhuapl.edu> . Kids can learn amazing facts about Pluto at spaceplace.nasa.gov/en/kids/pluto.



This artist's rendering shows how Pluto and two of its possible three moons might look from the surface of the third moon. Credit: NASA/ESA and G. Bacon (STSci)

2006 SBVAA Calendar of Events

All dates are on Saturdays (except Grandview trips). Meetings are held at the San Bernardino County Museum from 7:00–10:00 pm. For more information, contact Chris Clarke, Secretary & Outreach Coordinator at (909) 384–8539.

January 21.....	Meeting (3rd Saturday)
January 28.....	Star Party
February 18.....	Meeting (3rd Saturday)
February 25.....	Star Party
March 18.....	Meeting (3rd Saturday)
March 25.....	Star Party
April 15.....	Meeting (3rd Saturday)
April 29.....	Star Party
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
September 16.....	Meeting (3rd Saturday)
September 22–24.....	Star Party (Grandview)
October 14.....	Meeting (3rd Saturday)
October 21.....	Star Party
November 11.....	Meeting (2nd Saturday)
November 18.....	Star Party
December 9.....	Holiday Get-Together (2nd Saturday)
December 16.....	Star Party

The Star Party Calender for 2006

New Moon	Star Party Date		Location
1st Qtr Moon Party	January 7th	8 Day ANM	Martin Carey's
January 29th 2006	January 28th	1 Day BNM	Owl Canyon
February 27th 2006	February 25th	2 Days BNM	Johnson
Valley			
March 29th 2006 Messier Marathon	March 24-26th	4 Days BNM	Owl Canyon
April 27th 2006	April 29th	2 Days ANM	Johnson
Valley			
May 26th 2006 RTMC (Johnson Valley?)	May 27th	1 Day ANM	RTMC /
June 25th 2006 GrandView	Jun 23rd-25th	1 Day BNM	GrandView
July 24th 2006	July 22nd	2 Days BNM	Owl Canyon
August 23rd 2006	August 26th	3 Days ANM	Johnson
Valley			
September 22nd 2006 GrandView	Sept. 22nd-24th	NM	GrandView
October 21st 2006	October 21th	NM	Owl Canyon
November 20th 2006	November 18th	2 Days BNM	Johnson
Valley			
December 20th 2006	December 16th	4 Days BNM	Owl Canyon

BNM = Before New Moon

ANM = After New Moon

NM = New Moon

Tom Lawson

Star Party Coordinator

San Bernardino Valley Amateur Astronomers

www.sbvaa.org

starparty_coordinator@sbvaa.org

**STAR PARTY: Saturday, January 28, 2006
at Owl Canyon, Barstow, CA**

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

**MEETING: January 21, 2006--7:00PM
Member's Telescope Show and Tell
ASTRO-VIDEO**

"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**

393 West La Cadena Dr
Ste 17
Riverside, Ca 92501