



# THE OBSERVER

SAN BERNARDINO VALLEY AMATEUR ASTRONOMERS

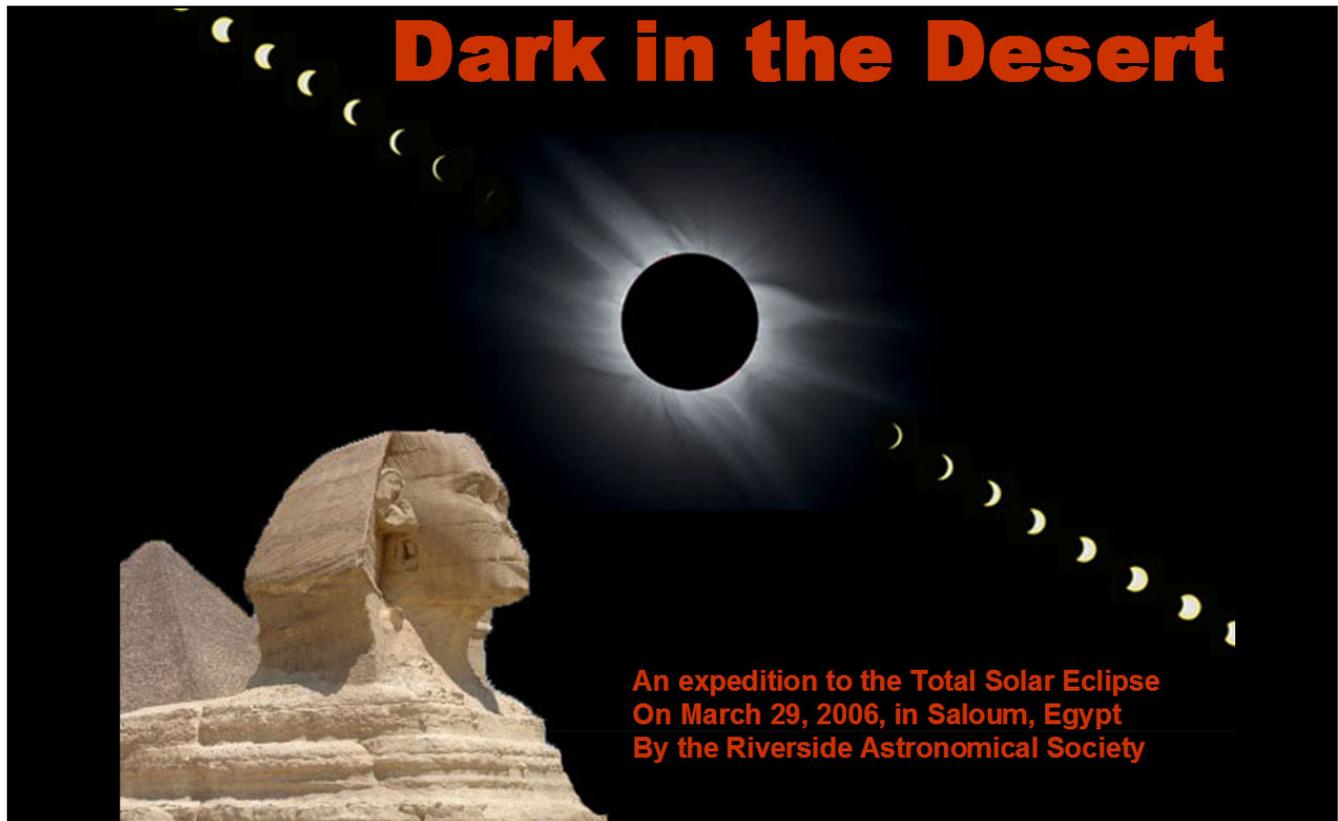
Member THE ASTRONOMICAL LEAGUE

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

VOLUME #48 ISSUE #11

NOVEMBER 2006

**The President of the Riverside Astronomical Society,  
Alex McConahay, will present  
"Dark in the Desert—An Expedition to the Egyptian Eclipse."**



**MEETING: November 11, 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**

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## **NOVEMBER MEETING:**

The President of the Riverside Astronomical Society, Alex McConahay, will present "Dark in the Desert—An Expedition to the Egyptian Eclipse." Meeting attendees will have the opportunity to join a group of intrepid travelers from the Riverside Astronomical Society as they venture to the middle east to witness one of the most spectacular of natural phenomena—a total eclipse of the sun.

## **NEW PRICE FOR CLUB SUBSCRIPTION OF ASTRONOMY MAGAZINE**

The new cost for a club subscription of ASTRONOMY magazine will be \$34.00, up from \$29.00.

## **CALENDARS**

The 2007 "Deep Space Mysteries" calendars are here. It will be available for sale starting

## **SBVAA**

### **CALENDER OF EVENTS 2006**

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

November 11.....Meeting (2nd Saturday)

November 18.....Star Party

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

December 16.....Star Party

**Note:** New Calender will be published in  
 January newlsetter.

with the club meeting on September the 16th. We have 30 for sale on a first come first served basis. The retail for this calendar is \$12.95 plus \$1.00 tax or \$13.95 altogether. Your cost, through the club, is \$10 a savings of \$4. See Fidel, the club treasurer, at the back of the room to make your purchase.

**email**  
**articles and photos**  
**for**  
**The Observer**  
**to:**  
**WSMyer@aol.com**  
**We need your articles!!**

## President's Message

By Martin L. Carey

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

We are getting a lot of clear weather again, and the nights are cooling off a little. This last star party at Owl Canyon, the sky was a little on the bright side, but we still had some fine views of our fall and early winter friends. Mike brought his 16" for the big views. Rudy brought several of his star students, and although the group was small, it was worth the trip. We noticed they have some playground swings at OCC, which Rudy's students found and played on.

It appears to me that the Owl Canyon site has gotten brighter, and is brightening more rapidly than Johnson Valley. I haven't seen a dark sky at OCC for maybe 3 years. Is that anyone else's impression? There are methods of measuring this precisely, a good project for someone. I do believe that Johnson Valley is now the darker of the two sites.

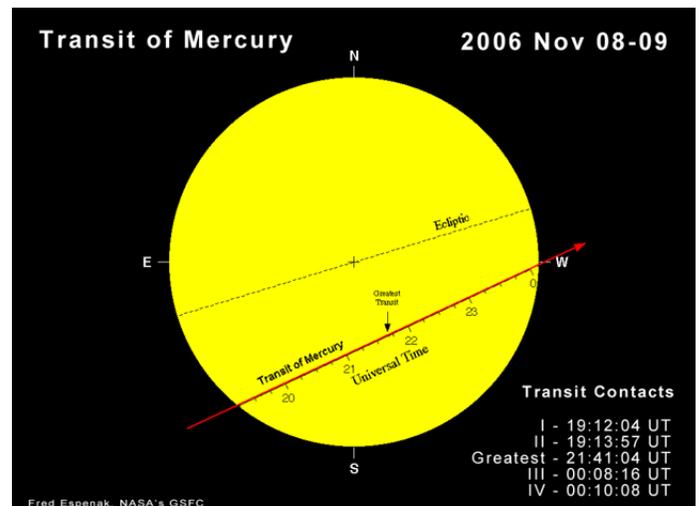
This meeting we have a wonderful presentation by Alex McConahay, which you will not want to miss. Bring you family and friends, this is a good

## Middle East Eclipse!

The President of the Riverside Astronomical Society, Alex McConahay, will present "Dark in the Desert—An Expedition to the Egyptian Eclipse." Meeting attendees will have the opportunity to join a group of intrepid travelers from the Riverside Astronomical Society as they venture to the middle east to witness one of the most spectacular of natural phenomena—a total eclipse of the sun. McConahay's interest in astronomy began as a young child. He has built two telescopes and earned a Merit Award at the annual RTMC Astronomy Expo held in Big Bear every Memorial Weekend.

## 2006 Transit of Mercury

Mark your calendar: On Wednesday, Nov 8, the planet Mercury will pass directly in front the Sun. The transit begins at 2:12 p.m. EST (**11:12 a.m. PST**) and lasts for almost five hours. Good views can be had from the Americas, Hawaii, Australia and all along the Pacific Rim.

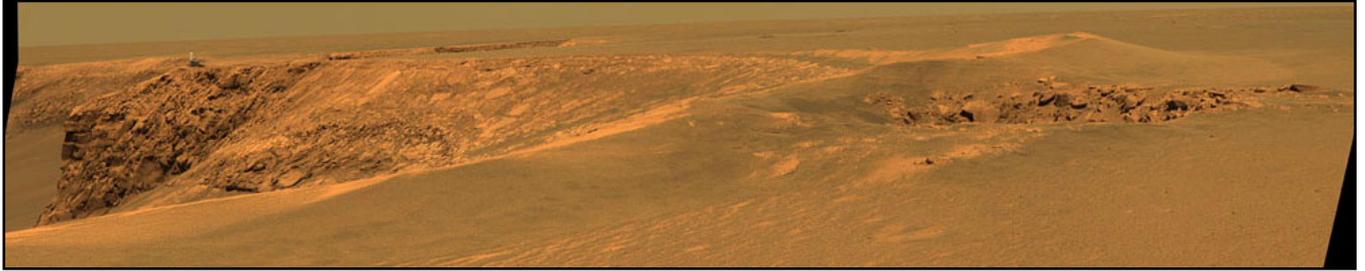


During the transit, Mercury's tiny disk--jet black and perfectly round -- will glide slowly across the face of the Sun. Only a speck of the Sun's surface is actually covered, so the Sun remains as dangerous as ever to look at. But with a proper filter and a little imagination, the Transit of Mercury can be a marvelous experience.

There are many ways to safely observe the Sun, e.g., through eclipse glasses or by means of a pinhole projector. In this case, nothing beats a telescope equipped with a sun-safe H-alpha filter. H-alpha filters are narrowly tuned to the red glow of solar hydrogen. They reveal the Sun as a boiling inferno, cross-crossed by dark magnetic filaments and peppered with sunspots. Warning: The sight of Mercury navigating this starscape could be mind blowing.

NASA

# MARS ROVERS UPDATES



## Opportunity on 'Cabo Frio' (Simulated)

This image superimposes an artist's concept of the Mars Exploration Rover Opportunity atop the 'Cabo Frio' promontory on the rim of 'Victoria Crater' in the Meridiani Planum region of Mars. It is done to give a sense of scale. The underlying image was taken by Opportunity's panoramic camera during the rover's 952nd Martian day, or sol (Sept. 28, 2006).

This synthetic image of NASA's Opportunity Mars Exploration Rover at Victoria Crater was produced using "Virtual Presence in Space" technology. Developed at NASA's Jet Propulsion Laboratory, Pasadena, Calif., this technology combines visualization and image processing tools with Hollywood-style special effects. The image was created using a photorealistic model of the rover and an approximately full-color mosaic.

## SPIRIT UPDATE: Approaching Solar Conjunction - sol 982-987, October 16, 2006:

As Spirit enters a period known as solar conjunction, when the sun interferes with transmissions between Mars and Earth, mission planners sent a complete set of plans for science activities during solar conjunction to Spirit on the rover's 982nd sol, or Martian day, of exploring inside Gusev Crater (Oct. 7, 2006). During that time, the rover will achieve a new milestone: exploring Mars for 1,000 consecutive days.

Solar conjunction will begin on sol 991 (Oct. 16, 2006) and end on sol 1015 (Nov. 10, 2006). During this period, both NASA rovers, Spirit and Opportunity, will not receive any new command loads, but they will send daily downlinks to Earth, averaging 15 megabits of data per transmission. The data will be relayed to Earth via NASA's Mars Odyssey spacecraft in orbit above Mars.

# CASSINI UPDATE

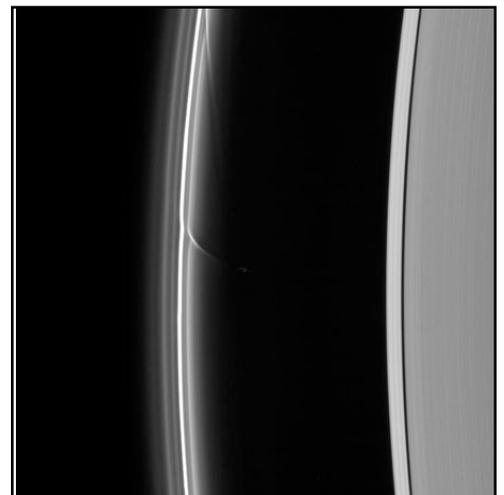
## The Hand of Prometheus November 6, 2006

A shepherd moon can do more to define ring structures than just keep the flock of particles in line, as Cassini spacecraft images such as this have shown.

Prometheus (102 kilometers, or 63 miles across) is seen here with two long streamers of material that it has pulled out of the F ring. When Prometheus comes close to the F ring in its orbit, the moon's gravity tugs on the ring particles. The disturbed particles, now pulled into orbits slightly closer to Saturn and therefore faster, shear out during successive orbits, creating the long and delicate streamers seen here.

This view looks toward the unlit side of the rings from about 31 degrees above the ringplane.

The image was taken in visible light with the Cassini spacecraft narrow-angle camera on Sept. 29, 2006 at a distance of approximately 1.7 million kilometers (1 million miles) from Prometheus and at a Sun-Prometheus-spacecraft, or phase, angle of 160 degrees. Image scale is 10 kilometers (6 miles) per pixel.



## Final Shuttle Mission to Hubble Similar to Previous Servicing Flights

10.31.06

STS103-726-081 : Hubble Space Telescope  
The decision by NASA to proceed with a mission to service the Hubble Space Telescope on a 2008 shuttle mission will enable flight controllers and astronauts to begin around two years of training for a final shuttle visit to the astronomical observatory.



Image to right: The Hubble Space Telescope floats gracefully above the blue Earth after release from Discovery's robot arm during the STS-103 mission in December 1999. Image credit: NASA

The 11-day mission will allow the crew to use the now-familiar Orbiter Boom Sensor System (OBSS) on the second day of the flight to conduct comprehensive inspections of the shuttle's thermal heat shield en route to the telescope. The boom will be used again to survey the reinforced carbon-carbon protection on the leading edges of the shuttle's wings and other areas of its heat shield on flight day 9 after the crew releases Hubble. It will be used a final time on flight day 10 for a late inspection to ensure that the shuttle heat shield has not been damaged by micrometeoroid particles.

The cameras on the shuttle's robotic arm will be used on flight day 3 after Hubble is grappled and berthed in the payload bay during an additional inspection opportunity.

The final space shuttle mission to the Hubble Space Telescope will resemble the previous shuttle servicing flights to the telescope: STS-61 in 1993, STS-82 in 1997, STS-103 in 1999 and STS-109 in 2002. A day-by-day sketch of what the mission will likely entail includes:

The destination is familiar territory to three of the crew: Altman will be making his second trip to Hubble; Grunsfeld will be making his third trip to service the telescope; and Massimino will be making his second trip to Hubble. Grunsfeld, Massimino, Feustel and Good will conduct the spacewalks during this mission. McArthur will operate the robotic arm.

## 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 \_\_\_\_\_

## Golden Night on Saturn November 7, 2006

Saturn's B and C rings shine in diffuse, scattered light as the Cassini spacecraft looks on the planet's night side. The southern hemisphere is lit by sunlight reflecting off the rings, while the north shines much more feebly in the dim light that filters through the rings and is scattered on the northern hemisphere.

The fine, innermost rings are seen silhouetted against the southern hemisphere of the planet before partially disappearing into shadow.

The color of the rings appears more golden because of the increased scattering in the rings brought about by the high phase angle and the view being toward rings' the unlit side. Saturn also looks more golden because of the high phase angle here.

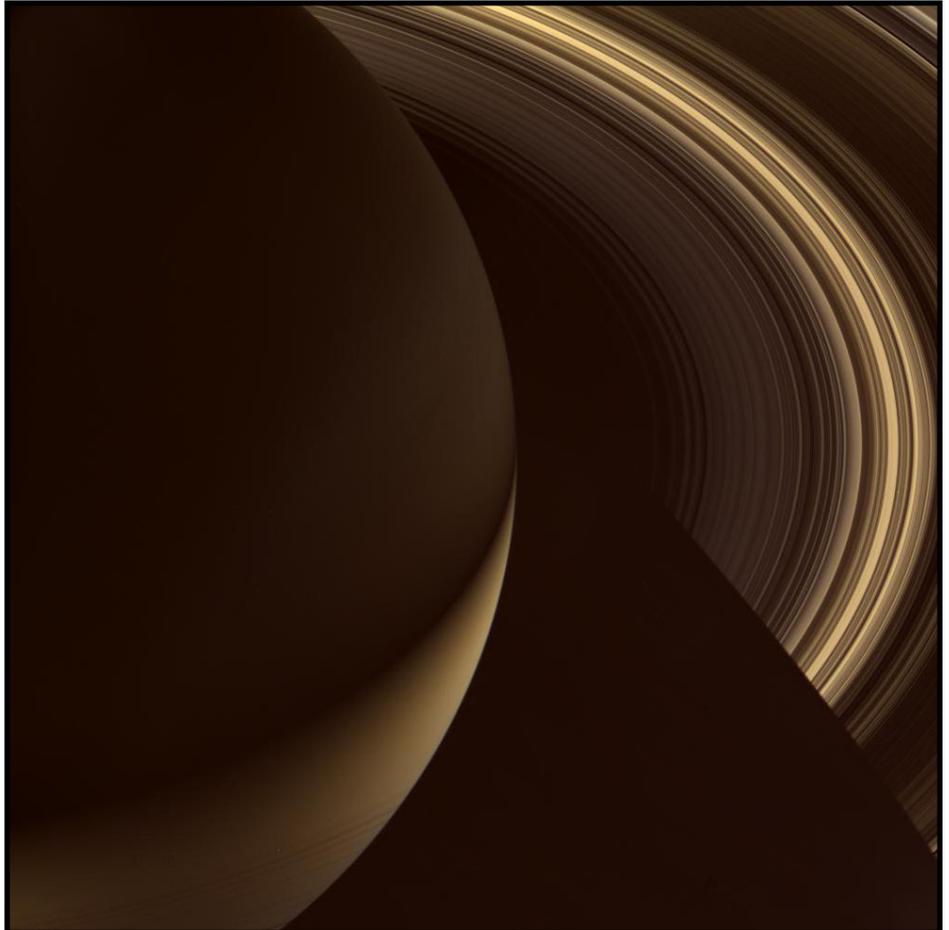
Images taken using red, green and blue spectral filters were combined to create this natural color view. The images were obtained by the Cassini spacecraft wide-angle

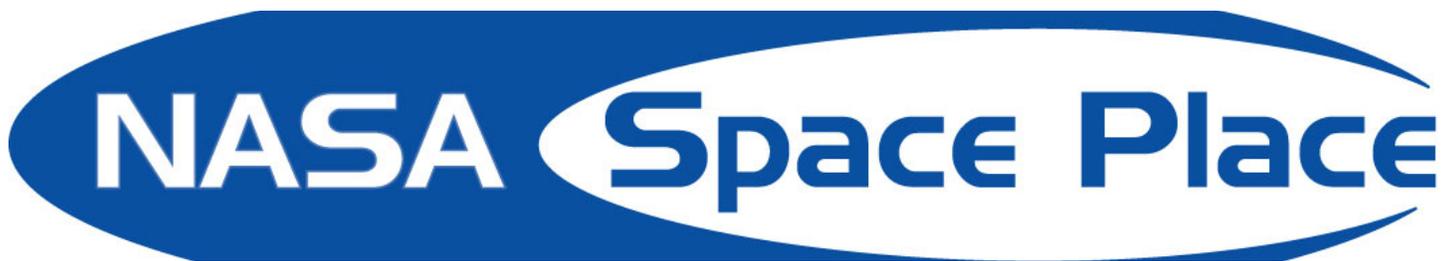
camera on Sept. 28, 2006 at a distance of approximately 1.4 million kilometers (900,000 miles) from Saturn and at a Sun-Saturn-spacecraft, or phase, angle of 151 degrees. Image scale is 83 kilometers (51 miles) per pixel.

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





## The Planet in the Machine

By Diane K. Fisher and Tony Phillips

The story goes that a butterfly flapping its wings in Brazil can, over time, cause a tornado in Kansas. The "butterfly effect" is a common term to evoke the complexity of interdependent variables affecting weather around the globe. It alludes to the notion that small changes in initial conditions can cause wildly varying outcomes.

Now imagine millions of butterflies flapping their wings. And flies and crickets and birds. Now you understand why weather is so complex.

All kidding aside, insects are not in control. The real "butterfly effect" is driven by, for example, global winds and ocean currents, polar ice (melting and freezing), clouds and rain, and blowing desert dust. All these things interact with one another in bewilderingly complicated ways.

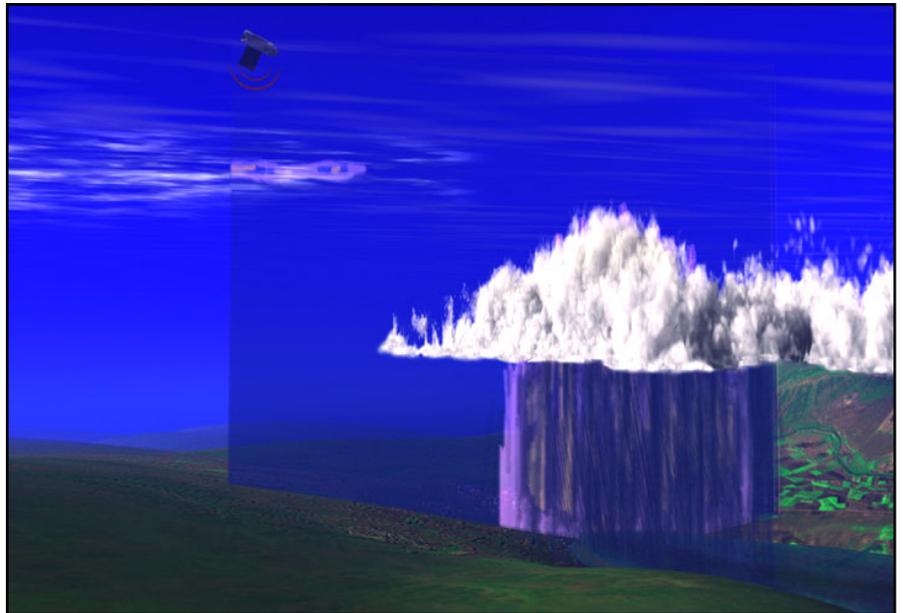
And then there's the human race. If a butterfly can cause a tornado, what can humans cause with their boundlessly reckless disturbances of initial conditions?

Understanding how it all fits together is a relatively new field called Earth system science. Earth system scientists work on building and fine-tuning mathematical models (computer programs) that describe the complex inter-relationships of Earth's carbon, water, energy, and trace gases as they are exchanged between the terrestrial biosphere and the atmosphere. Ultimately, they hope to understand Earth as an integrated system, and model changes in climate over the next 50-100 years. The better the models, the more accurate and detailed will be the image in the crystal ball.

NASA's Earth System Science program provides real-world data for these models via a swarm of Earth-observing satellites. The satellites, which go by names like Terra and Aqua, keep an eye on Earth's land, biosphere, atmosphere, clouds, ice, and oceans. The data they collect are crucial to the modeling efforts.

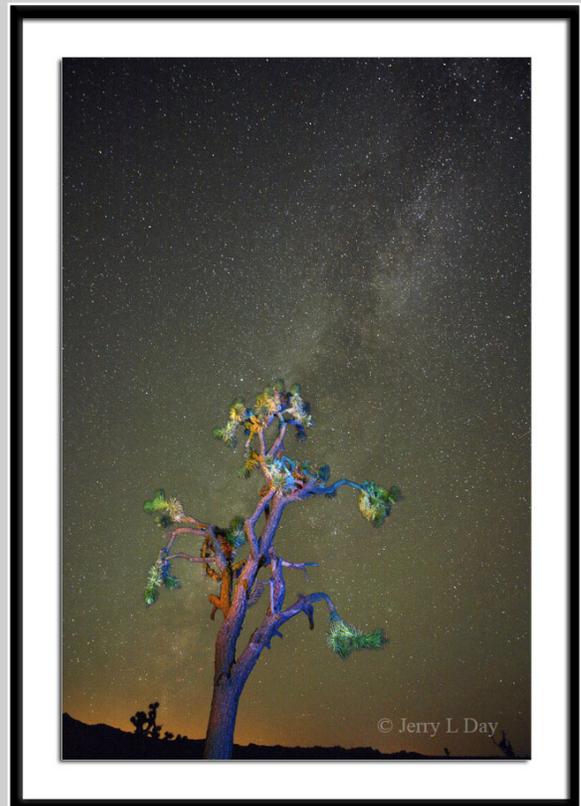
Some models aim to predict short-term effects—in other words, weather. They may become part of severe weather warning systems and actually save lives. Other models aim to predict long-term effects—or climate. But, long-term predictions are much more difficult and much less likely to be believed by the general population, since only time can actually prove or disprove their validity. After all, small errors become large errors as the model is left to run into the future. However, as the models are further validated with near- and longer-term data, and as different models converge on a common scenario, they become more and more trustworthy to show us the future while we can still do something about it—we hope.

For a listing and more information on each of NASA's (and their partners') Earth data-gathering missions, visit [science.hq.nasa.gov/missions/earth.html](http://science.hq.nasa.gov/missions/earth.html). Kids can get an easy introduction to Earth system science and play Earthy word games at [spaceplace.nasa.gov/en/kids/earth/wordfind](http://spaceplace.nasa.gov/en/kids/earth/wordfind).



CloudSat is one of the Earth observing satellites collecting data that will help develop and refine atmospheric circulation models and other types of weather and climate models. CloudSat's unique radar system reads the vertical structure of clouds, including liquid water and ice content, and how clouds affect the distribution of the Sun's energy in the atmosphere

## Member Gallery: Jerry Day



# **STAR PARTY: JOHNSON VALLEY**

**NOVEMBER 18, 2006**

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

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**SAN BERNARDINO COUNTY MUSEUM**

**2024 ORANGE TREE LANE, REDLANDS, CA  
CALIFORNIA STREET EXIT FROM INTERSTATE 10**



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