

The Observer

SAN BERNARDINO VALLEY AMATEUR ASTRONOMERS

Member of The Astronomical League

<http://sbvaa.org/>



Volume #54, Issue 12

Since 1958

December, 2013

Meeting:

December 7, 2013

Location:

Shakey's Pizza
836 W. Colton Ave.
Redlands, CA

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Program

Annual Holiday Get-together

Saturday, December 7th

between 3 and 5 pm.

Shakey's Pizza
836 W. Colton Ave.
Redlands, CA 92373
909-793-5993



Seasons Greetings

There will also be a **Gift exchange**. For those wishing to participate please bring a nice wrapped gift..... 'value not to exceed \$25.00.'

SBVAA Officers

President:

Vice President:

Treasurer: Fidel Hernandez 909-864-0615

Secretary - Educational Outreach: Chris Clarke
909-384-8539 Work
909-875-6694 Home

Star Party Coordinator: Tom Lawson
909-8828198

SBVAA Webmaster: Steve Miller 626-859-7776

Newsletter Editor: Jim Sommer 909-792-3587

Calendar of Upcoming Events

Jan. 4, Star Party, Johnson Valley

Jan. 11, Club Meeting, Grove School

Feb. 1, Star Party, Johnson Valley

Feb. 8, Club Meeting, Grove School

March 1, Star Party, Johnson Valley

March 8, Club Meeting, Grove School

March 29, Star Party, Johnson Valley

Editor's Notes

Jim Sommer

As you read this I will be on the road, on my way back from several weeks of travel. First to the 2nd annual Arizona Science & Astronomy Expo, and then up to Rockies near Crestone, Colorado. I hope to have some good pictures and material for a write-up on the ASAE event. Last year's show was phenomenal. Also, I'll be taking a scope with me on the trip so I can check out the skies in south central Colorado. I may get some pictures there too. It's cold in Crestone though. Daytime highs in the low to mid forties and night time lows in the teens and (brrrrrr) lower.

Please remember, gentle reader, that your observing experiences are of interest to your fellow club members. Whether it is a club star party or just a nice night by yourself or with a few friends, we would like to get your input. Don't worry about writing style, and all that -- that's what editors are for. Do you have a piece of new equipment? Write a little article about it explaining how it works for you. Share your knowledge -- it's fun. (And you can say that you've been "published.")

2014 ASTRONOMY CALENDARS

The 2014 "Deep Space Mysteries" calendars from Astronomy Magazine are here. they will be available for sale starting with the club meeting in October.



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 this year, is \$8 -- a savings of \$6. See Fidel, the club treasurer, at the back of the room to make your purchase. Reservations are accepted.

Prolific NASA Mars Orbiter Passes Big Data Milestone

Story & photo credit, NASA/JPL

NASA's Mars Reconnaissance Orbiter, which has overhauled understanding of the Red Planet since 2006, has passed 200 terabits in the amount of science data returned. The data returned by the mission alone is more than three times the total data returned via NASA's Deep Space Network for all the other missions managed by NASA's Jet Propulsion Laboratory, Pasadena, Calif., over the past 10 years.



While the 200 terabits number includes all the data this orbiter has relayed to Earth from robots on the surface of Mars, about 99.9 percent of the volume has come from the six science instruments aboard Mars Reconnaissance Orbiter. The 200 terabits are equivalent to the data volume in three nonstop months of high-definition video. The number does not include the engineering data that specialists operating the orbiter from JPL and Lockheed Martin Space Systems, Denver, use for monitoring its health and performance.

The spacecraft pours data Earthward using a dish antenna 10 feet (3 meters) across and a transmitter powered by 215 square feet (20 square meters) of solar cells. Multiple sessions each day with giant dish antennas of the Deep Space Network in California, Spain and Australia enable Earth to receive such a torrent of data from the orbiter.

"The sheer volume is impressive, but of course what's most important is what we are learning about our neighboring planet," said JPL's Rich Zurek, the project scientist for the Mars Reconnaissance Orbiter.

The orbiter's instruments have examined Mars from subsurface to atmosphere in unprecedented detail. One instrument has provided images revealing features as small as a desk in surface areas equivalent to one-third of the United States (1.92 percent of Mars' surface). Another has covered areas equivalent to about 82 percent of Earth's land area (83.6 percent of Mars' surface), with resolution showing features smaller than a tennis court. These cameras have viewed many areas repeatedly, providing three-dimensional information from stereo and revealing several types of landscape changes over time. Other instruments identify surface minerals, probe underground layers, examine cross-sections of the atmosphere and track weather globally.

"The mission has taught us about three very different periods of Mars history," Zurek said.

Its observations of the heavily cratered terrains of Mars, the oldest on the planet, show that different types of ancient watery environments formed water-related minerals. Some of these would have been more favorable for life than others. In more recent times, water appears to have cycled as a gas between polar ice deposits and lower-latitude deposits of ice and snow. Extensive layering in ice or rock probably took hundreds of thousands to millions of years to form. The present climate is also dynamic, with volatile carbon dioxide and, possibly, flows of briny water forming dark streaks that are observed to appear in the warmest seasons and places and fade in colder weather.

"Mars Reconnaissance Orbiter has shown that Mars is still an active planet, with changes such as new craters, avalanches and dust storms," Zurek said. "Mars is a partially frozen world, but not frozen in time."