

May-June
2010
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Issue 3

The Observer

The Newsletter of Central Valley Astronomers of Fresno

In this Issue:

Profiles in Astronomy-
Edward Mills Purcell

What is the space pro-
gram's future?

Lightning on Saturn

Messier Marathon Night

Hubble is 20!

CVA Calendar

May 1-CVA meeting 7pm
CSUF

May 7-Friday night star
parties at Discovery Cen-
ter begin

May 8-Star Party at East-
man Lake

May 14-Star Party in Coa-
linga

May 17-Elementary school
star party at Kingsburg
Observatory

June 11-weekend star party
at Courtright Lake

June 12-Star party at East-
man Lake

June 19-CVA star party at
Riverpark

June 26-CVA meeting 7pm
at CSUF



Astronomical Object of the Month

This beautiful image of M88 in Virgo is probably similar to what our Milky Way galaxy would look like if we could view it from afar. Summer is galaxy watching season. Be ready for them and much more! Image from NASA

Quote of the Month:

Once you have tasted flight, you will forever walk the Earth with your eyes turned upwards, for there you have been, and there you will always long to return.

-Leonardo da Vinci



New Moon May 13



Full Moon May 27



New Moon June 12



Full Moon June 26

Glacier Point Yosemite Weekend July 16-17, 2010

See inside for details

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Web Address:
www.cvfresno.org
Webmaster
Aaron Lusk 559-332-3102
admin@caservers.net

Officers and Directors for 2010:

President
Steve Harness 559-292-2753
sharness@sbcglobal.net

Vice-president
Dale Iohrman 559-260-9992
dlohman@digisolaz.com

2d Vice-president
Fred Lusk 559-436-1833
Fel3@pacbell.net

Treasurer
Bryan Spicci 559-594-4936
quizzler2@netscape.net

Secretary
Casey Chumley

Star Party Coordinator
Brian Bellis 559-264-2645
pandb91@comcast.net

Historian
Larry Parmeter 559-276-8753
lanparmeter3@hotmail.com

Director
Lynn Kliewer 559-251-3656
lelliottk@att.net

Director
Steve Britton 559-897-4529
sbritton@cvip.net

Director
Clarence Noell 559-271-9304
xmascn@sbcglobal.net

Director
Dave Artis 559-658-8016
dave.artis@direcpc.com

Director
Greg Morgan 559-348-1160
gmorgan@oldstarlight.com

Director
Randy Steiner 559-252-0130
astrigeo@cvip.net

Director
Sharon Barrett

The Observer May-June 2010

President's Message-

I finally got a chance to get my scope out. The other times I was either out of town or it was bad weather. It felt good to set it up and talk with the other club members. First was Vintage Days on the 17th. There were five of us there. We had an estimated 100-150 people come and look through the scopes and ask many questions. I had some 3-D postcards and literature to give to the visitors. While there were no sunspots, two of the members has Coronado solar scopes with the Hydrogen-Alpha filters. One was particularly huge, 90 mm I think. With both scopes, the prominences were clearly visible and beautiful. I've never seen the sun with such beauty. Thanks to those who were able to make it and share with everyone.

On to Saturday Night, same day. It was the second Messier Marathon. I arrived at Hensley around 6:30 because the gates close at 7pm. They should close later in the evening as the amount of daylight increases. There were over a dozen scopes set up preparing for an evening of viewing. As the sun went down, the sky looked great. It was going to be a great night. The 3-day old Moon, Venus, Mars, and Saturn were bright in the sky. Then came the clouds. A large cloud mass hovered over the sky. We waited, waited, and waited some more. Finally I decided to pack it up. After the last piece of equipment was safely in my truck, the sky cleared up. For some the evening was not a total waste. A couple of the members took some great images of the Moon.

May is looking to be a great astronomy month. There will be Star Parties at Eastman Lake, Coalinga, Hensley, RiverPark, and Kingsburg. Look in the rest of the newsletter for the dates and locations. Speaking of Kingsburg, Steve Britton and I worked on the dome scope. We cleaned everything, got it balanced, and collimated. It is ready to go. Now for some clear night skies.

Keep looking up.
Steve

Central Valley Astronomers of Fresno, est 1952

Our Goals:

- Provide a place for those interested in astronomy to come together and share their hobby
- Share the wonders of astronomy with the public
- Be a source of astronomy education and information for our schools, the public, and the media

Our Interests:

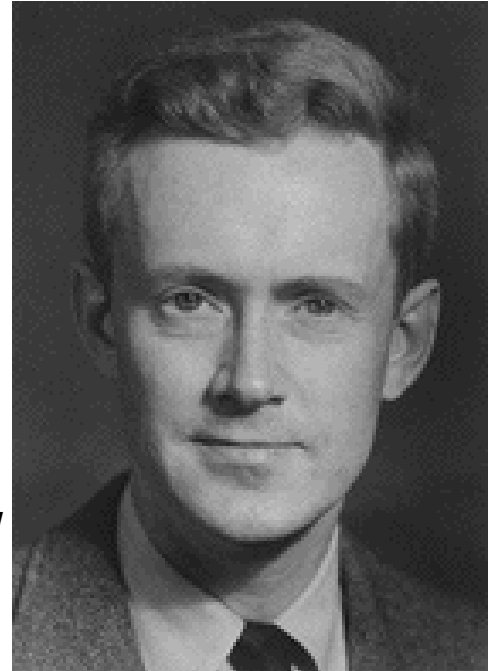
- To learn about astronomy and related topics
- To enjoy the nights sky with the unaided eye, telescopes, and binoculars
- To learn from others and share what we know about astronomy from others

Profiles in Astronomy

Edward Mills Purcell 1912-1997

Edward Purcell was born and raised in Illinois, went to college at Purdue University, and later earned a doctorate in physics from Harvard. During World War II, he worked at MIT on the development of radar. In 1945, Purcell returned to Harvard, where he would spend the rest of his career, and in December of that year, discovered nuclear magnetic resonance, which could measure chemical structure and the properties of different materials. It would become an important tool in physics, chemistry, and medicine, and it won Purcell the Nobel Prize for Physics in 1952. Purcell also did important work in particle and solid state physics.

Purcell is less known, but equally influential, for a major discovery in astronomy. In 1951, he was investigating the properties of hydrogen with a Harvard graduate student, Harold Edwin. They decided to build a crude radio telescope out of plywood and copper foil to try to find hydrogen emissions from space. On March 25, 1951, they detected 21 centimeter radiation from neutral hydrogen in outer space. It was a major breakthrough in radio astronomy, and led to mapping the entire Milky Way for the first time; the 21cm line has since become a standard in radio astronomy. Purcell won many honors for his work, including the National Medal of Science. He was a science advisor to several presidents, and was president of the American Physical Society and the American Academy of Arts and Sciences.



Don't Forget! The CVA Online Store!





On it, we have a wide variety of merchandise with the CVA logo, including shirts, sweatshirts, hats, mugs magnets, and other mementos. Some of the clothing items come in several colors, but you have to go to the individual product pages to see them.

Each product includes a donation to CVA

The CVA Online Store:
<http://www.cafepress.com/CVAFresno>

Number of extra-solar planets found as of April 2010-452
How many more are out there?

CVA Calendar for May and June 2010

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						May 1 CVA Meeting at CSUF 7pm
2	3	4	5 Cinco de Mayo	6	7 Friday night star parties at Discovery Center begin	8 Anniversary of VE Day Star party at Eastman Lake
9 Mother's Day	10	11	12	13 New Moon 	14 Riverside Telescope Maker's Conference Begins Star party in Coalinga	15 RTMC Armed Forces Day Star party at Hensley Lake
16 RTMC	17	18	19	20	21 Star Party for the Parkway	22 Public star party at Riverpark
23	24	25	26	27 Full Moon 	28	29
30	31 Memorial Day	June 1	2	3	4	5
6 Anniversary of D-Day	7	8	9	10	11 Courtright Star party thru Sunday	12  CVA star party at Eastman Lake
14	14 Flag Day	15	16	17	18	19 Public star party at Riverpark
20 Father's Day	21 Summer Solstice	22	23	24	25	26 CVA Meeting CSUF 7pm Partial Lunar Eclipse 
27	28	29	30	July 1	2	3

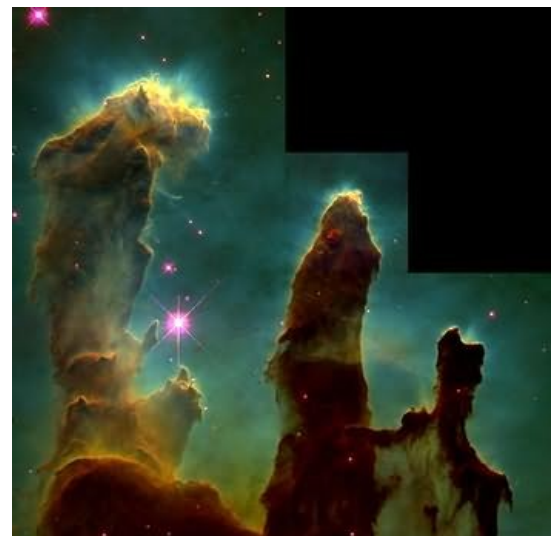
Images from CVA's Messier Marathon 2010



The Messier Marathon is always a neat experience-Trying to find and view as many Messier objects in one night-From sundown to sunup. A moonless night in March is the best time for such an event, but this year provided nights in both March and April -for double the fun!

Happy Birthday to Hubble-20 years of viewing the Heavens!

Believe it or not-the Hubble Space Telescope has been in orbit for 20 years now, providing unparalleled views of our universe. First conceived in 1975, it was expected to be put into orbit in 1986, but had to wait four years in the wake of the Challenger tragedy. Lofted aboard the Space Shuttle in April 1990, it was soon found to have a flawed mirror. The critics snickered and wrote it off as a \$1 billion dud, but a shuttle repair mission quickly corrected the abnormality with new optics. Since then, Hubble has been giving scientists and laypeople alike views of the universe as it's never been seen before, going far beyond its original expectations. Its best known image-the Pillars of Creation in the Eagle Nebula(at right), captured the imagination of the world, and more than redeemed its price tag and early troubles. With its most recent repairs and updates, it is expected to perform for at least five more years.



NASA'S CASSINI SPACECRAFT SEES LIGHTNING ON SATURN

NASA's Cassini spacecraft has captured images of lightning on Saturn. The images have allowed scientists to create the first movie showing lightning flashing on another planet.

After waiting years for Saturn to dim enough for the spacecraft's cameras to detect bursts of light, scientists were able to create the movie, complete with a soundtrack that features the crackle of radio waves emitted when lightning bolts struck. "This is the first time we have the visible lightning flash together with the radio data," said Georg Fischer, a radio and plasma waves science team associate based at the Space Research Institute in Graz, Austria. "Now that the radio and visible light data line up, we know for sure we are seeing powerful lightning storms."

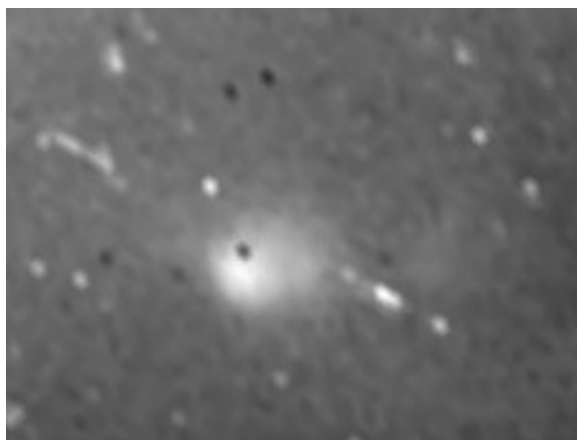
The movie and radio data suggest extremely powerful storms with lightning that flashes as brightly as the brightest superbolts on Earth, according to Andrew Ingersoll, a Cassini imaging science subsystem team member at the California Institute of Technology in Pasadena. "What's interesting is that the storms are as powerful --or even more powerful -- at Saturn as on Earth," said Ingersoll. "But they occur much less frequently, with usually only one happening on the planet at any given time, though it can last for months."

The first images of the lightning were captured in August 2009, during a storm that churned from January to October 2009 and lasted longer than any other observed lightning storm in the solar system. Results are described in an article accepted for publication in the journal *Geophysical Research Letters*.

To make a video, scientists needed more pictures with brighter lightning and strong radio signals. Data were collected during a shorter subsequent storm, which occurred from November through mid-December 2009. The frames in the video were obtained over 16 minutes on Nov. 30, 2009. The flashes lasted less than one second. The images show a cloud as long as 1,900 miles across and regions illuminated by lightning flashes about 190 miles in diameter. Scientists use the width of the flashes to gauge the depth of the lightning below the cloud tops. When lightning strikes on Earth and on Saturn, it emits radio waves at a frequency that can cause static on an AM radio. The sounds in the video approximate that static sound, based on Saturn electrostatic discharge signals detected by Cassini's radio and plasma wave science instrument.

Cassini, launched in 1997, and NASA's Voyager mission, launched in 1977, previously had captured radio emissions from storms on Saturn. A belt around the planet where Cassini has detected radio emissions and bright, convective clouds earned the nickname "storm alley." Cassini's cameras, however, had been unable to get pictures of lightning flashing. Since Cassini's arrival at Saturn in 2004, it has been difficult to see the lightning because the planet is very bright and reflective. Sunlight shining off Saturn's enormous rings made even the night side of Saturn brighter than a full-moon night on Earth. Equinox, the period around August 2009 when the sun shone directly over the planet's equator, finally brought the needed darkness. During equinox, the sun lit the rings edge-on only and left the bulk of the rings in shadow. Seeing lightning was another highlight of the equinox period, which already enabled scientists to see clumps in the rings as high as the Rocky Mountains. "The visible-light images tell us a lot about the lightning," said Ulyana Dyudina, a Cassini imaging team associate based at Caltech, who was the first to see the flashes. "Now we can begin to measure how powerful these storms are, where they form in the cloud layer and how the optical intensity relates to the total energy of the thunderstorms."

The Cassini-Huygens mission is a cooperative project of NASA, the European Space Agency and the Italian Space Agency. NASA's Jet Propulsion Laboratory in Pasadena manages the mission for NASA's Science Mission Directorate in Washington. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL.



What's New in Space

The President, the Space Program, and the Future of NASA

On April 15, President Obama held a meeting with top NASA officials at the Kennedy Space Center in Florida, and afterwards announced new goals and priorities for the American manned space program. He wants the U.S. to skip a return to the Moon by 2020, and instead work on a long-range program

that includes manned missions to an asteroid and eventually to Mars by the year 2030. The President also announced that he wants the U.S. to undertake a "fast-track" program to build a heavy lift rocket for such missions, and he said that he would support funding to build a modified version of the Orion CEV capsule for use as an emergency life-boat vehicle for the International Space Station. As to a successor to the Space Shuttle, the President wants NASA to work with private companies on a manned "space taxi" to take astronauts to and from ISS and other low Earth orbit missions.



President Obama's announcement was met with mixed reactions. While many in the space community applauded it, others believe that it will lead to the decline of the U.S. as a space power. On April 14, former Apollo astronauts Neil Armstrong, Jim Lovell, and Eugene Cernan sent a letter to the President, asking him to continue the Constellation program, fearing that its elimination would make the U.S. a third rate power in space. On the other hand, Armstrong's moonwalking colleague, Edwin "Buzz" Aldrin, was with the President at the Kennedy Space Center, and strongly supported his initiatives. U.S. Senator Bill Nelson, a former Shuttle astronaut, has also come out in support of the new NASA direction. Many others, though, fear that with no American manned space vehicle for at least the next five years, the U.S.'s space technology lead and prestige will slip.



It has been revealed that NASA is in talks with a private spaceflight company, SpaceX, headed by Eldon Mott, the founder of PayPal, to develop a manned spacecraft for use by the space agency's astronauts. According to reports, the craft could be operational by 2016, depending on the success of SpaceX's upcoming unmanned Falcon rocket launches. The next scheduled launch will be in April 2010; it will be the fifth attempt. Only one of the previous four Falcon launches has been successful. NASA is also working with Jeff Bezos, the billionaire founder of Amazon.com, on a manned space vehicle as well. Bezos' company, Blue Origin, is currently building a space launch center in Texas.

NASA has a contract with RKA, the Russian Space Agency, to send six American astronauts a year to ISS on Soyuz flights in 2011 and 2012. It is now negotiating with RKA for six more a year in 2013 and 2014. One of the main sticking points is that the Russians have raised their price for a Soyuz seat from \$25 million to \$50 million, but NASA officials believe that this can be worked out.

Ever since the President announced that the Constellation-Orion CEV program will be no longer funded, many in Congress have become increasingly worried about both the economic and political effects of the decision, in particular, the US having to rely on the Russians for manned space flights for the foreseeable future. A number of senators and representatives are supporting a bill, sponsored by Senator Kay Hutchinson of Texas, that would continue the Space Shuttle program beyond its scheduled retirement date, to when a new American manned spacecraft becomes operational. They are also concerned about the effect, with the unemployment rate still high, of laying off thousands of workers at the end of the Shuttle program. The White House says that the Obama Administration's new goals for NASA will actually increase employment, but many in the aerospace sector have doubts about that.

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Another Space Pioneer Leaves: Robert White 1924-2010

Robert "Bob" White, one of the original X-15 pilots and the fifth American to go into space, died at the age of 85 at his Florida home on March 17, 2010, according to his son. The reason for his death was not given, but it was due to natural causes.

White was born in New York in 1924, and joined the U.S. Army Air Corps in 1943. He flew 80 missions in P-51 Mustangs over Europe during World War; in late 1944, he was shot down and spent eight months in a German POW camp. After the war, he went to New York University and earned a degree in engineering. He was recalled to active duty in 1951, and flew missions during the Korean War, after which he went through the Air Force's test pilot and advanced flying schools, and gained a reputation as one of the best pilots in the Air Force. In 1958, White was assigned to the X-15 program, a precursor to the manned space program.

In 1961, he set an altitude record with the X-15, reaching 136,000 feet; a few months later, he set a speed record of 2,800 mph, the fastest anyone had flown in a winged craft up to that time. On July 17, 1962, White flew the X-15 to a height of 314,000 feet, 59 miles above the Earth. The Air Force had a policy of awarding astronaut wings to any of its pilots who flew 50 miles or higher; White was the second person to receive them, after Virgil "Gus" Grissom, who flew the second Mercury-Redstone mission in July 1961. In late 1963, White left the X-15 program. In 1967, he was seriously injured in the crash of the XB-70, an experimental supersonic bomber; the same crash killed Joe Walker, another X-15 pilot. He flew combat missions in Vietnam during the 1960s, and in 1970 became the director of the Air Force's Flight Test Center at Edwards AFB. Afterwards, he held various other military positions and steadily rose in rank to two star general. He retired from the Air Force in 1981, and went into private industry afterwards.

According to author Tom Wolfe, White was an anomaly among the hard drinking hellraising "right stuff" military pilots of the 1950s and 60s: he did not drink, smoke or party, was devoutly religious (he attended early morning mass at the Roman Catholic chapel at Edwards every day), and was a devoted family man. He was also one of the best pilots in the world at the time, and although he is all but forgotten now, he played an integral role in America's early space program.



X-37B launched on Mystery Mission

The Air Force's unmanned spaceplane, the X-37B, was launched atop an Atlas 5 rocket on Thursday, April 22, from Cape Canaveral Air Force Station. Although its successful deployment into orbit was announced, little else was made public about its makeup and mission. It was revealed that the spacecraft has solar panels that provide power, and fold into the body when the mission is completed. Exactly how long that mission will be is still a secret, although some sources say that it will probably stay in orbit for at least six to nine months before making an automated landing at Vandenberg Air Force Base in California.

The Air Force has revealed that the X-37B project started in 1999 as a NASA program, then was handed over to the military in 2004. The craft itself, 29 feet long, 15 feet wide at the wings, and weighing 11,000 pounds, was built by Boeing's Phantom Works. A general description of its mission was given as testing guidance and navigation systems, thermal protection, and autonomous operations in orbit. Although the military has not said so, it is widely believed that the craft will be tested for automated combat support systems and development of future low orbit weapons systems. Whether a manned version will be built is unknown.



Astronomical Trivia

Last issue's astronomical trivia question:

What have been some of the other names for the constellation that we today call Ursa Major, or The Big Bear?

The constellation has gone by a number of names over the centuries. The Ursa Major designation was given to it by the Greeks. The early English called it the Plough. The ancient Egyptians called it the Crocodile, and to the Chinese it was the Celestial Bureaucrat. In parts of Medieval Europe the constellation was known as The Wagon.

This issue's trivia question-

Speaking of the ancient Greeks, they originally called one of the planets Cytheria. Which one was it?

Larry Parmeter is the editor of
The Observer

phone # 559-276-8753

E-mail lanparmeter3@hotmail.com

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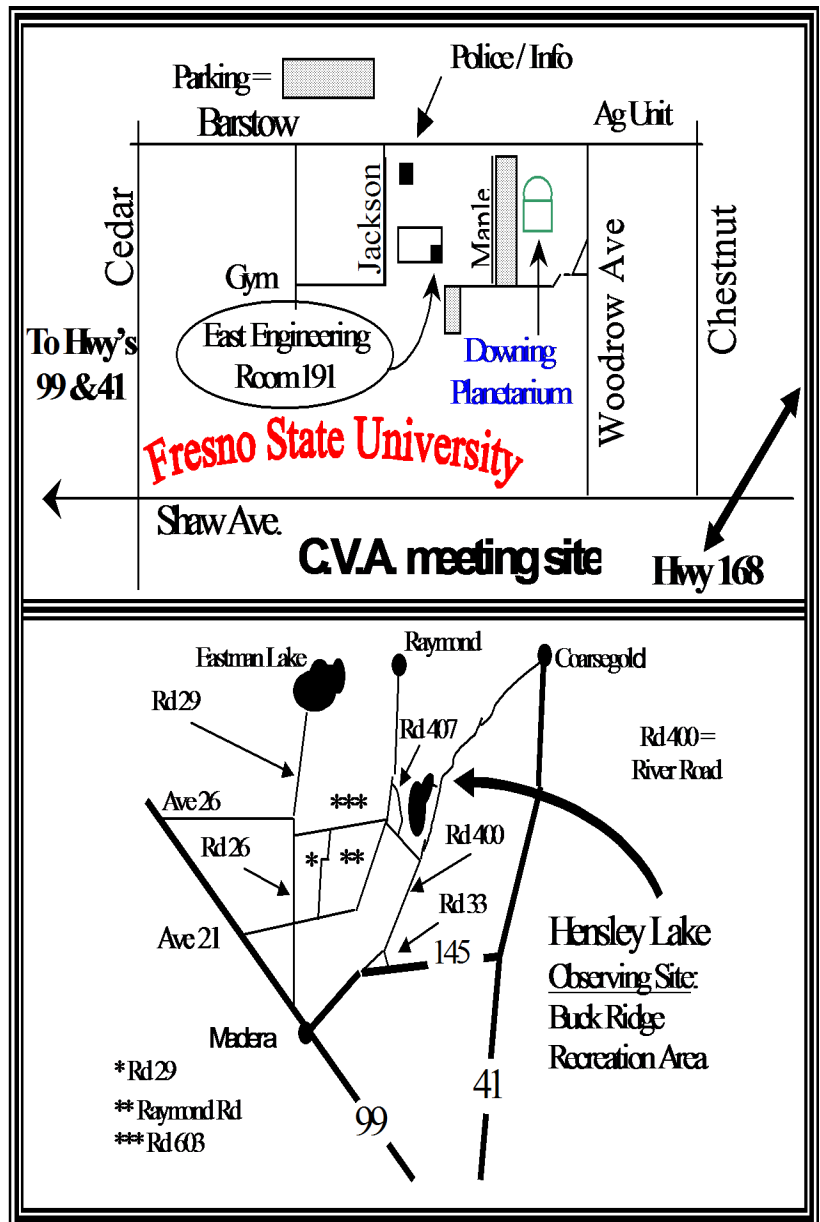
Submissions Deadline-June 1

CVA Finances and Member Status

As of April 2010- \$109.21 in checking account
\$995.90 in savings account

CVA has 73 active members as of April 2010

Several people still have not paid their 2010 dues-Get them in as soon as possible!



**Reminder-Glacier Point Yosemite
Star Party
July 16-17, 2010**

**Make reservations now!
Contact Dave or Bonnie Dutton at
559-658-7642**

Or twodocs@sierratel.com