



March MMV 2005

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President's Message

President's Message

Those of you that were able to make it to January's meeting had a real treat. Fred Lusk's talk on stellar evolution was very informative. Fred gave a wonderful talk on how stars are born, live and die. Particularly interesting to me was the animation of the birth of a star cluster by the gravitational condensation of hydrogen gas. Thanks Fred!

Steve Britton showed us pictures of his recent trip to England. The pictures of Stonehenge, Greenwich and Newton's telescope, among others, were all very interesting. Thanks Steve!

Another treat was brought to us by Richard Kinney. Richard shared with us his vast collection of rocket models. Both American and Russian spacecraft were put side by side to show the relative scale of the vehicles. Thanks Richard for bringing in your rocket collection.

As spring unfolds, there will be a number of schools that will be requesting star parties. The newsletter will inform us with the specific information. Randy Steiner has been doing a great job at coordinating all the requests that we receive. Please help support the CVA by bringing your scope and enthusiasm to our local schools.

For those of you that are not yet aware, the Downing Planetarium has a new addition, the Downing Planetarium Museum. California State University, Fresno President John D. Welty and the College of Science and Mathematics held a Ribbon Cutting Ceremony and Reception on February 24th 2005. The CVA is proud to extend its congratulations to this historical event.

Best,

Greg Morgan

Question of the Month: Besides your telescope, mount, and eyepieces etc., what is the most important item that you don't go observing without?

"Eye glasses are the real most important item I take observing. Without eye glasses only one 2mm eyepiece would be worth having along. Of course I'd probably wreck the car driving without glasses so taking a scope without the eyeglasses would just result in double trouble. Who wants double trouble or wants to have a 2mm eyepiece when using a dob. Now for the simple answer: Eye Glasses." —Rich

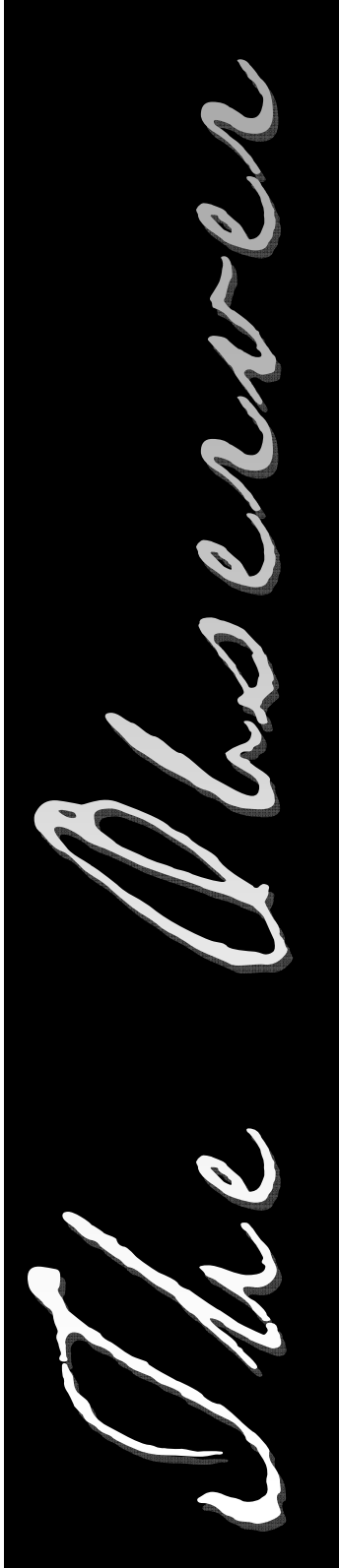
"I would guess "Good manners." —Ken and Katy

"My Starbound observing chair. It really makes for a comfortable night of observing. Don't leave home without it!" —Steve

"Fig Newtons. Change that to Fig Newtons and my LaFuma chair." —Fred

"Snacks, food, friends, oh and my Pocket PC." —Aaron

"Insect repellent!" —Sue and J.R.



MARCH 2005

12 – CVA Star Party at Hensley Lake
Messier Marathon #1
(weather permitting)

Sunset: 6:05 p.m. Moonrise: 8:02 a.m. next day

26 – CVA Meeting at CSUF East Engineering
Room 191, 7:00 p.m.

Speaker: Dr Fred Ringwald

Topic: Modern Cosmology, The Origin of the Universe

APRIL 2005

9 – CVA Star Party at Hensley Lake
Messier Marathon #2
(weather permitting)

Sunset: 7:30 p.m. Moonrise: 7:29 a.m. next day

11-15 – Astronomy Week
15-17 Vintage Days at CSUF

23 – CVA Meeting at CSUF East Engineering
Room 191, 7:00 p.m.

Speaker: Don Machholtz

Topic: Comet Hunting

MAY 2005

7 – CVA Star Party at Hensley Lake
(weather permitting)

Sunset: 7:55 p.m. Moonrise: 5:59 a.m. next day

21 – CVA Meeting at CSUF East Engineering
Room 191, 7:00 p.m.

Speaker: TBA

Topic: TBA

27-29 – Riverside Telescope Makers Conference

31 – Aaron Lusk graduates from Bullard High School
2:00 p.m. Save Mart Center

Courtright 2005

Depending on the Spring snow melt these are the scheduled dates for CVA Summer at Courtright star parties.

June 3-5

July 1-5

August 5-7

This absolutely awesome site has an almost 360° view with extremely dark skies and is only 2 hours away from Fresno. It is primitive camping, but well worth it. The site is very flat and easy to get to by car. For more information please contact Fred or Debi Lusk at 436-1833. More details to follow. Put these dates on your calendar now, you're not going to want to miss it!!! The cost is free.

CVA Board Members

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Glacier Point Star Party 2005

August 12th-13th

Free Yosemite Park entrance and free camping. This is a wonderful opportunity to share your passion for astronomy, spend time getting to know your fellow

CVAer's and observe the heavens at 7200 feet.

30 spots are available to CVA members in good standing, so reserve soon.

Contact CVA member Dave Dutton @ (559) 658-7642

(leave message if necessary)

What's New in Space

By Larry Parmeter

Huygens Makes Successful Landing on Titan



The European Space Agency's Huygens spacecraft successfully landed on Saturn's moon Titan after a seven-year piggyback ride on the U.S. Cassini probe. Huygens was released from Cassini on December 25, and entered the Titan atmosphere on January 14. Some twenty minutes later, it parachuted and landed with a plop on Titan's surface and started transmitting images and information back to Earth. The earliest images showed the surface of the moon while the craft was still descending on its parachute. They depicted a tumbled landscape, a shoreline, and an ocean of some liquid type material. When the craft landed, it is believed to have set down on a muddy beach only a few meters from the edge of a vast lake filled with what scientists believe is liquid methane. The first images from the surface showed a desert-like landscape with boulders of ice and weathered rock. Although the craft was expected to operate only about 20 minutes in the -200°F temperature, it continued sending signals for over two hours after landing. Scientists and engineers at ESA's space operations center at Darmstadt, Germany, were ecstatic over the mission, and the data sent back will keep them busy for months, even years to come.

Cassini continues to orbit around Saturn, and will spend at least the next five years surveying the

giant ringed planet and its moons, taking thousands of images, and collecting vast amounts of scientific data, which will lead to future, more sophisticated spacecraft. Even if something happens now and the mission ends, it has already been a considerable success.

The Next Generation Mars Rover

While planetary scientists are justifiably rejoicing over the continued success of the Spirit and Opportunity Mars rovers, they are already planning the next landing mission. It will involve a rover (maybe two) that will be far larger and more sophisticated than anything sent to Mars up to this time.

The Mars Science Laboratory (MSL), as it is called, is now taking shape for a scheduled 2009 launch and a 2010 landing on the Red Planet. The rover will be the size of a midrange SUV, weigh over a thousand Earth pounds, and be able to travel up to 15 miles away from its landing point. It will carry a sophisticated collection of instruments, including a mini-laboratory that will scoop up soil samples at different locations and analyze them for proteins and amino acids, in an attempt to learn if life does exist on the surface or just below it. Instead of solar panels to produce electricity, like previous rovers, it will be powered by a small nuclear generator similar to the ones carried by the Jupiter Galileo and Saturn Cassini spacecraft. It will also have the ability to make a pinpoint landing on Mars, possibly using a "skycrane" carrier craft, which will skim just above the surface until it finds a desirable landing spot, then hover and lower the rover down to the surface using a tether. The MSL landing site will be determined by images from the Mars Reconnaissance Orbiter, which is scheduled to be launched in August of this year for a 2006 arrival. For now, the MSL mission has funding for only one rover, but given the success of Spirit and Opportunity, there's a good chance that additional funds will be found to send two of them to Mars, with launchings a month or so apart.

Speaking of Spirit and Opportunity, they just keep going on and on. Both passed a year of research and photography on the Martian surface in January 2005, and neither shows signs of slowing down. Spirit celebrated the first anniversary (January 3) of its landing by discovering a meteorite on the Martian surface, while Opportunity celebrated its, on January 24, by taking a close look at the remains of the heat shield that protected it while descending through Mars' atmosphere. Pro-

ject engineers were delighted with this, since it gave them the chance to study stress and damage, helpful in designing future heat shields. Both rovers are still healthy, although the buildup of dust on their solar panels is causing a slight power reduction. Mission managers now feel that, if all goes well, they will be operational for at least another year and possibly longer. Not bad for vehicles with a lifetime warranty of three months.

NASA News: "Shuttle Fever" Rising; New Administrator Named

NASA, and more specifically, the Kennedy Space Center, is experiencing what experts call "Shuttle Fever," in expectation of the resumption of Shuttle launches this spring after a two year hiatus following the Columbia tragedy. STS-114 is now scheduled to be launched around May 15, although no firm date has yet been set. It could be as late as June 3, but also as early as May 10. Eileen Collins will command a seven-member crew on a ten-day mission to the international space station; it will be bringing new structural components and vitally needed supplies such as food and water. In the meantime, critics warn that NASA's culture still discourages major changes in safety and technology; claiming that workers are still afraid to speak out about safety violations, and managers are more concerned about their job security than making necessary changes.

On February 16, the White House named veteran astronaut Fred Gregory to be NASA's interim chief administrator, replacing Sean O'Keefe, who resigned to become the chancellor of Louisiana State University; O'Keefe's last day with NASA was February 18. Gregory, a retired Air Force colonel, was NASA's deputy administrator. He was chosen as an astronaut in 1978, and flew aboard three shuttle missions in the 1980s and 90s. Afterwards, he went into NASA's managerial ranks, and served in a variety of positions before becoming deputy administrator. It is not known if he will be chosen as permanent chief administrator.



⌘ continued from Page 1...

"This seems like a trick question. Things that went through my mind include: my wife, my vehicle, appropriate clothing, my corrective lenses (eye glasses), snack food and drink, and someone to show the views to. I also thought back to growing up looking through Grandpa's surveying transit (it showed us 5 moons of Jupiter). My list of things for back then is almost the same (wife replaces Mom) as the one for now, although the order has been adjusted." —Pat and Hugh

"Always observe with an observing log sheet, a sketching pad, and pencils. These items are what make observing fun and memorable. Comments and sketches do not have to be fancy or elaborate; in most cases, simple is best." —David L.

"Insect repellent (nothing ruins a nice evening quicker than mosquito bites) and munchies." —Clarke

"Lets face, If I don't have a few CVA buddies along, It just isn't much fun." —Dale

"This time of year my jacket, extra sox, and a roll of T.P. —Jon

The next most important piece of my observing gear would be my star charts, and after that would come my all wood "piano stool" which allows me to observe in comfort. —Marge

Binocular Comets For March
---Mag 10.5 and brighter



Comet	Mag	Observable	Visible
Macholtz (2004 Q2)	5	85N to 5S	all night
LINEAR (2003 K4)	9	45N to 60S	evening
twi			light
LINEAR (2003 T4)	8 to 7	85N to 5S	morning

<http://www.ast.cam.ac.uk/~jds/> provides lists of visible comets and asteroids.

Q2 comet continues its north journey passing Polaris on Mar. 3rd. On Apr 1st Q2 is half way to the Big Dipper bucket. K4 sets early. At 19:30 in mid-Mar. K4 elevation is 19deg and 6deg W of Gam Eri. A bit of a challenge. T4 says in Equ / Dei area. T4's elevation is 20deg at 5am and is 10deg SW of M15.

Your "looking forward to clear skies" comet hunter, Rich

⌘

Profiles in Astronomy ⌘

Henri Poincare 1854-1912

Poincare was born and raised in Nancy, France, and attended the University of Paris (the Sorbonne), where he excelled in mathematics. He wrote his doctorate thesis on differential equations, and, on the strength of that, was offered a position at the University of Caen, but stayed at the Sorbonne, where he would spend the rest of his life, and eventually become a full professor of mathematics.



Poincaré's influence in mathematics has been enormous. He was a pioneer in several fields, including hyperbolic geometry, which was of vital importance to Einstein and the theories of relativity, and of algebraic topology, which he called "analysis situs." His most famous work is known as the Poincaré Conjecture, having to do with three dimensional and higher positions in space.

In 1888, Poincaré took on what was known as the *n*-body problem, part of a mathematics competition sponsored by the King of Sweden. It had to do with describing the mathematics involving the stability of the solar system, according to Newton's law of universal gravitation. Poincaré only partly solved the problem, but what he discovered in Newton's equations is of vital importance to those in celestial mechanics today: that when three or more planetary bodies are involved, their trajectories and orbits cannot be precisely determined far into the future. This was perhaps the first modern realization of mathematical chaos, and for this finding, the king awarded Poincaré the prize in 1889. From 1892 to 1899, Poincaré elaborated on his ideas on the *n*-body problem in a three volume reference *Les Methodes nouvelles de la mecanique celeste* (New Methods for Celestial Mechanics), which revolutionized the entire field.

Poincaré also did serious mathematical work in time-space equations, and the effects of a body on them, the outgrowth of his *n*-body work and also his hyperbolic geometry theories. For this, many give him credit, along with Einstein, for the formulation of the special theory of relativity.

Poincaré died at a relatively young age (58), but he was showered with honors before his death, and he is rightly seen as a giant in his field, one who led mathematics and physical science into the 20th century.

Sources: Moore (ed.) Illustrated Encyclopedia of Astronomy. New York: Orion Books, 1987.

For Sale

20" Obsession Dobsonian with Argo Navis computer. This computer has a 29,000 object data base. I also have 3 eyepieces, all Tele Vue, one Panoptic 35 mm, one 17 mm Nagler Type 4, and one 9 mm Type 6. I also have an old Coulter 17.5" f4.5 mirror and diagonal—both need recoating. If any one is interested please contact me:

John Rupp
436-0563

Astronomers Needed

Tuesday, March 15th

Dusk -9:00

Quail Lakes Charter School

4087 N. Quail Lake Dr.

¼ mile east of McCall on Ashlan

Contact person: Greg Morgan

Thursday, March 17th

Dusk-9:00

Fairmont Elementary School

3095 N. Greenwood, Sanger

Contact person: Brian Bellis

Wednesday, April 13th

Dusk-8:30

Fresno Evangelical Free Church

AWANA kids K-6th Grade

3438 E. Ashlan

Between Millbrook and First on south side of
the street

Contact persons Fred and Debi Lusk

Treasurer's Report

Checking: \$100.00

⌘ Savings: \$2600.00

as of 2/21/2005

Web Links

Astronomy Animations

Several CVA'ers—mostly science teachers (no surprise there)—have asked me where I found the animations for my recent PowerPoint presentation about stellar evolution. The short answer is Google and persistence. The long answer is dozens of searches, starting with {stellar evolution} and {stellar evolution animations}, and looking at several hundred [sic] websites. When I put together the first version of the presentation last August for my friend's general science class, I had so little time that I lost track of all the different search parameters I tried. I also lost track of some of the websites and sources. A little re-search research recovered most of them.

There are literally thousands of astronomy-related animations (and video) out there on the Internet. The animations I found range from simple, DOS-style, EGA-level graphics to large, complex, supercomputer models that are both scientifically interesting and aesthetically pleasing. I downloaded dozens of different animations, but only a few made the final cut. These are the animations I used in my presentation:

- Dr. Matthew Bate and his collaborators at the University of Exeter, England, have prepared several excellent animations of star and star cluster formation using the supercomputer at the UK Astrophysical Fluid Facility. Dr. Bate's home page (the first URL below) has two links to his animations. Before using Dr. Bate's animations, please read and abide by his "Copyright" paragraph (see the second URL listed below). Some of these animations are long and complex, and thus huge. The star cluster animation—**Formation of Stars and Brown Dwarfs and the Truncation of Protoplanetary Discs in a Star Cluster** [*cluster2.avi*—weighs in at 91.5 MB. On the other hand, **Dynamical Rotational Instability of the First Hydrostatic Core** [*bate1.mpeg*] is only 1.9 MB. <http://www.astro.ex.ac.uk/people/mbate/index.html>
<http://www.astro.ex.ac.uk/people/mbate/animations.html>
- The University of Illinois at Urbana-Champaign has a website called "Digital Demo Room" (see URL below) that has 17 different animated Hertzsprung-Russell Diagrams. I used **Sun (Evolution Tracks – On)** [*suntrackson.mpg*] and **10,000 Stars** [affectionately named *supermovie.mpg*]. These animations are all less than 10 MB. <http://rainman.astro.uiuc.edu/ddr/stellar/beginner.html>
- You can find the animation of the Sun's magnetic field on one of the Marshall Space Flight Center webpages (see URL below). The link to download the animation—which should automatically run when you access the webpage—is at the bottom of the page. The movie was prepared by Dr. David Hathaway of NASA. I used the

2.3 MB MPEG movie [*kpnomagh.mpeg*]. The QuickTime movie has a higher resolution, but it's 12.8 MB. More recent searches using {Hathaway sun magnetic} and other parameters uncovered additional, larger, animations of the Sun's magnetic field also prepared by Dr. Hathaway, but I haven't downloaded any of them...yet.

<http://science.nasa.gov/ssl/pad/solar/maghstry.htm>

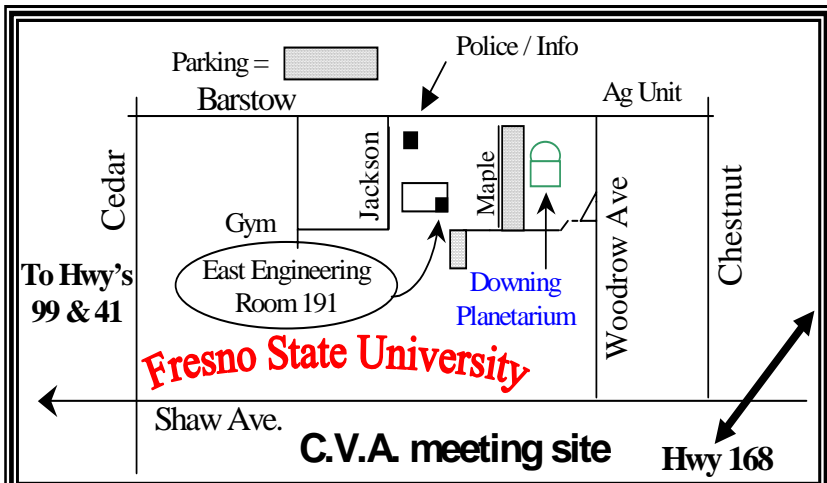
- The Dutch Open Telescope website (the first URL) has dozens of movies of the sun. Clicking on **DOT Movies of the Sun** takes you to the second URL. Here I found **AR 10425** [*AR10425-two-20030809.mpg*], which is actually the very first movie on the page. The file size is 11.2 MB. <http://dot.astro.uu.nl/>
<http://hst33127.phys.uu.nl/~pit/DOT/Showpiece/movies.html>
- I was not able to quickly find again the TRACE satellite coronal loop movie from April 16, 2000, but recent searches using {TRACE solar movie} turned up numerous suitable alternatives.

It's not hard to grab an animation from a website. Some sites actually have a labeled download link. Simply click it and follow along. However, in most cases, the easiest way to download an animation, photograph, or graphic is to right-click on the item or the link and **Save Target As**. Alternatively, you can left click to play the animation, then do **File|Save Media As** (at least in Windows Media Player). Some animations run directly on the website using Java or Flash, or some other technique, and cannot be easily downloaded. There are ways to grab these animations, but it's more complicated than I want to cover here.

Since my foray into stellar evolution animations, I have expanded my searches to other astronomical topics, such as {galaxy animations}, {black hole animations}, {star cluster animations}, and so on. I have grabbed links to several hundred interesting-looking websites, and I will be going through them in more detail looking for the best animations. By the next newsletter, I should have another list of astronomy animations...here's a sneak preview:

- Indiana University maintains a site with several N-body simulations of galaxies and galaxy clusters in motion. These files are small (less than 3.5 MB), but excellent. <http://astrowww.astro.indiana.edu/animations/>

BTW, the beautiful H-R Diagram that I used is "© 2004, Pearson Education, publishing as Addison Wesley." You can find it at either http://boojum.as.arizona.edu/~jill/NS102_2004/Lectures/Lecture29/lecture29.html (with attribution) or <http://physics.njit.edu/~dgary/202/Lecture17.html> (without attribution, but with the HR-Diagram for four open clusters and several others).



The Observer is the monthly newsletter of the **Central Valley Astronomers, Inc.**, of Fresno, California, founded in 1952. **Central Valley Astronomers** is a non-profit organization dedicated to furthering the exploration and appreciation of the universe. Our mailing address is:

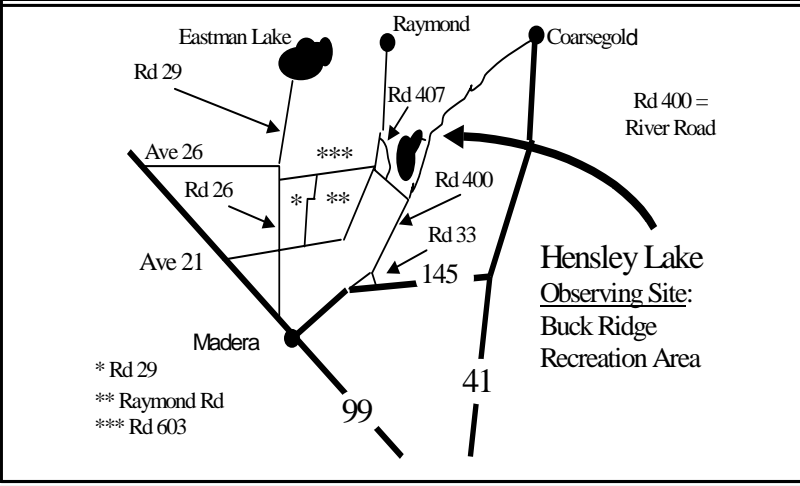
CVA
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 Pinedale, California 93650

Our address on the world wide web is:
www.cvafresno.org

To contact CVA by phone, call:
 Greg Morgan at 348-1160
 To arrange a star party, please call:
 Randy Steiner at 252-0130

Everyone is welcome to join CVA
 (application form is below).

Fred & Deborah Lusk edit *The Observer*
 565 W Vartikian, Fresno, CA 93704
 Phone Number (559) 436-1833
Lusk5@pacbell.net
 Submit contributions in Microsoft Word if possible or send information in e-mail text. Newsletter entry deadline 20th of the month.



"All scoped up and no where to party" Brian Bellis

Fill out this application form and mail it with your dues to:

Central Valley Astronomers Inc.
 c/o Bryon Spicci
 30669 Hamilton Drive
 Exeter, CA 93221

Annual Membership dues are:

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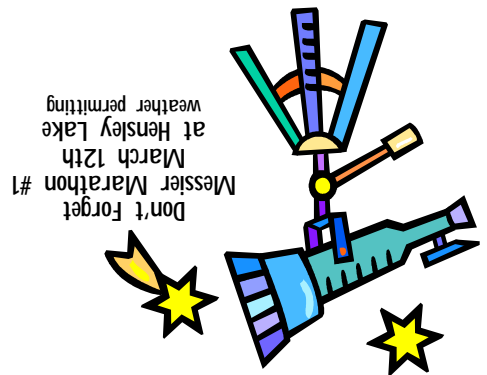
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