

PRIMEFOCUS

Tri-Valley Stargazers

January 2007



Meeting Info:

What

Astronomy Software

Who

TVS Members

When

January 19, 2007
Doors open 7:00 p.m.
Lecture at 7:30 p.m.

Where

Unitarian Universalist
Church in Livermore
1893 N. Vasco Road

Inside

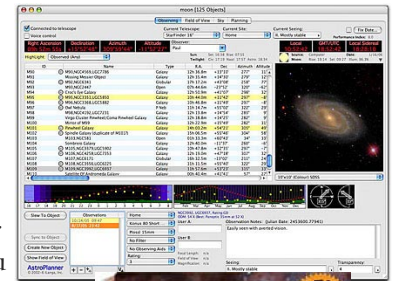
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January Meeting

Astronomy Software
TVS Members

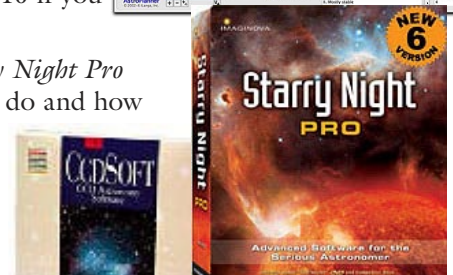
There are quite a few astronomy-related software programs out on the market that are intended to help you plan your observing night, locate various objects, control your telescope, and help you process your astrophotos. Tonight's meeting will be a review of some of those programs.

David Feindel will be demonstrating the program *AstroPlanner* (www.ilan-gainc.com/ASTROPLANNER). As the name suggests, this program helps you plan your observing night. You enter the objects you wish to observe and it will tell you which constellation it's in, and the rise and set times for each object, among other things. It will also allow you to enter your observational information, calculating your effective focal length, field of view, and magnification. It can also be used to control some Meade and Celestron scopes. The program can be purchased via PayPal or Kagi for \$25 for the downloaded version or \$40 if you want a disc.



Hilary Jones will be reviewing *Starry Night Pro* (www.starrynight.com)—what it can do and how it can be used with Astroplanner.

Starry Night has three programs—*Enthusiast*, *Pro*, and *Pro Plus*. Like *AstroPlanner*, the *Pro* version allows you to create observing lists and can control some telescopes. Unlike *AstroPlanner*, it allows you to travel through space, viewing the night sky from anywhere within 700 million light years away from Earth. The *Pro* version sells for \$150.



Once you've mastered the art of planning your observing night, you can start in on becoming a master astrophotographer. Gert Gottschalk will review two image processing programs—*CCDSOft* (www.bisque.com/Products/CCDSOft) and *CCDStack* (www.ccdware.com/products/ccdstack). *CCDSOft* is used with CCD cameras to control the camera and to process the resulting images. *CCDStack* allows you to stack and process digital images. *CCDSOft* retails for \$350, *CCDStack* is \$200.



News & Notes

Membership Renewal

TVS's membership year runs from January to December, so we're now starting our new membership period. You can use the form on the back of the newsletter to send in your annual dues, or you can download a PDF version of the form from the Membership link on our web site.

Regular membership is \$40 and will get you a paper version of Prime Focus mailed to you. Basic membership is \$30—you'll receive an e-mail notification that the online version of Prime Focus is available for download. Student membership is only \$5 a year and have the option of receiving either the paper version or the e-mail notification. (TVS considers a Student to be under the age of 18 or still in high school.)

If you wish to access the club's dark sky site and do not have a key to the site, you need to become a Key Holder. There is a \$20 refundable key deposit that needs to be paid before you get your key.

For all Key Holders, you need to pay a \$10 access fee for the site. This is a yearly fee to offset the costs of maintenance at the site. The \$3 per car fee that you pay when visiting the site goes directly to the landowners.

There is also a Patron membership category. Patron members are allowed to use the club's scope at H2O. You must be a member of at least one year, and in good standing, in order to become a Patron member. The cost is an additional \$40 to either a Basic or Regular membership and you must also be a Key Holder and pay the \$10 access fee.

You can also sign up to receive discounts on magazine subscriptions. A one year subscription to *Sky & Telescope* magazine is \$32.95. A one year subscription to *Astronomy* magazine is \$34, or if you prefer, you can sign up for a two year subscription for \$60.

So where do your membership dollars go? A big chunk goes to paying the rent for our meeting and storage space at the church. We pay about \$550 in various dues (Astronomical League, Astronomical Association of Northern California, Western Amateur Astronomers, and International Dark-Sky Association), \$330 in insurance, \$400 in newsletter costs, \$300 for refreshments and food/drink for the two potlucks, H2O rent, plus many smaller cost items (PO Box rental, library purchases, etc.).

2007 TVS Meeting Dates

The following lists the TVS meeting dates for the next few months. The lecture meetings are on the third Friday of the month, with the Board meetings on the Monday following the lecture meeting. The *Prime Focus* deadline applies to that month's issue (e.g., the February 4th deadline is for the February issue).

Lecture Meeting	Board Meeting	Prime Focus Deadline
Jan. 19	Jan. 22	Jan. 7
Feb. 16	Feb. 19	Feb. 4
Mar. 15	Mar. 19	Mar. 4

Money Matters

Treasurer **David Feindel** reports the TVS account balances (as of December 18, 2006):

Checking	\$2,459.92	
CD #1	\$3,580.37	matures 02/17/07
CD #2	\$2,530.80	matures 02/27/07

RASC Handbooks

The RASC (Royal Astronomical Society of Canada) 2007 Observer's Handbooks and Calendars have arrived and will be available for purchase at the January meeting. The Handbook is \$20, the Calendar is \$12.

The Handbook is a useful book filled with all kinds of astronomical data. Some of the information, like the section on Optics and Observing and the Table of Double and Multiple Stars, doesn't change much from year to year. Other sections, like the monthly sky events and the Pluto Finder Chart, are updated with each issue. The calendar features photos taken by amateur astronomers.

Calendar of Events

January 15, 7:30 p.m.

What: *Saturn's Rings: Ongoing Studies by Cassini*
Who: Dr. Jeff Cuzzi (NASA Ames Research Center)
Where: Jewish Community Center, San Francisco
Cost: \$4.00 at the door or by mail

The Cassini spacecraft arrived at Saturn in July 2004 and has provided many new insights into the structure and composition of Saturn's rings, and their dynamic interactions with nearby and embedded moonlets. By January 2007, the spacecraft will be at higher elevations above the ring plane than ever achieved before. New results will be put in the context of the big picture for understanding this fascinating system.

Newsletter header image: NGC 602

NGC 602 is a star cluster in the Small Magellanic Cloud, in the constellation Tucana. It's about 196,000 light years away and the image shows an area 180 light years wide.

The bright stars in the middle are blowing away the surrounding nebula from whence they came. Pillars, very similar in appearance to the Hubble "Pillars of Creation" image, have been formed around the inner "edge" of the nebula.

Photo: NASA, ESA, and the Hubble Heritage Team (STScI/AURA) - ESA/Hubble Collaboration

All programs begin at 7:30 pm in Kanbar Hall at the Jewish Community Center of San Francisco, 3200 California Street. Parking is available across the street in the UCSF Laurel Heights campus parking lot for \$1.25 per night. Parking in the JCC garage is \$1.25 per half-hour. The #1 California, #3 Jackson, #4 Sutter, and #43 Masonic MUNI lines stop directly in front of the building. The #38 Geary and #24 Divisadero buses stop only a few blocks away.

For more information, call (415) 321-8000.

January 24, 7:00 p.m.

What: *Glimpsing the Edge of the Universe: Results from the Hubble Space Telescope*

Who: Bruce Margon (UC Santa Cruz)

Where: Smithwick Theater, Foothill College

Cost: Free (\$2 for parking)

“Glimpsing the Edge of the Universe: Results from the Hubble Space Telescope” as part of the Silicon Valley Astronomy Lectures in the Smithwick Theater, Foothill College, El Monte Road and Freeway 280, in Los Altos Hills, California.

Call the series hot-line at 650-949-7888 for more information and driving directions.

No background in science will be required for this talk.

The Hubble Space Telescope has now circled the Earth 15 times every day for more than 16 years. Dr. Margon, who was until recently the Associate Director for Science for the Telescope, will fill us in on the latest discoveries and ideas from this amazing instrument. (With the Hubble, astronomers have been glimpsing the most distant galaxies, whose light left them shortly after the Big Bang.) He

will also discuss the future of the Hubble and some of its interesting sociology—the public reactions to it.

Dr. Margon is Vice Chancellor for Research at the University of California, Santa Cruz, having arrived there in the Fall of 2006 after working at the Space Telescope Science Institute. He was a key member of the team that built one of the Hubble’s instruments, and also served as Scientific Director of the Sloan Digital Sky Survey. Because of his skill in explaining astronomy in nontechnical terms, NASA has used him as one of its most frequent science commentators for the media when major discoveries from the Hubble were being announced.

The lecture is co-sponsored by: NASA Ames Research Center, The Foothill College Astronomy Program, The SETI Institute, The Astronomical Society of the Pacific.

January 26, 8:00 to 11:00 p.m.

What: *Lunar Lounge Express*

Who: You

Where: Chabot Space & Science Center, Oakland

Cost: \$15 Regular, \$10 Student. Tickets available at the Chabot Box Office, 510-336-7373

Party under the stars and enjoy an evening of hits present and past with DJ Justin Credible.

Expand your mind with a SonicVision planetarium show, telescope viewing, hands-on exhibits, giveaways and outta-this-world fun!

Enjoy food from our Celestial Café and refreshments from the cash bar - including \$3 microbrews from Buffalo Bills Brewery and \$3 glasses of wine.

<p>Officers</p> <p>President: Chuck Grant cg@fx4m.com 925-422-7278</p> <p>Vice-President: Rich Campbell r_photon@yahoo.com</p> <p>Treasurer: David Feindel feindel1@comcast.net</p> <p>Secretary: David Woolsey fatdawg@comcast.net</p> <p>Board of Directors Alane Alcorn, Jim Alves, Debbie Dyke, Gert Gottschalk, Stan Isakson, Mike Rushford, John Swenson.</p>	<p>Volunteer Positions</p> <p>Librarian: Jim Alves Ajaengr@yahoo.com 209-833-9623</p> <p>Newsletter Editor: Debbie Dyke astrodeb@comcast.net 925-461-3003</p> <p>Program Director: unfilled</p> <p>Loaner Scope Manager: John Swenson johnswenson1@comcast.net</p> <p>Webmaster: Chuck Grant</p> <p>Observatory Director/ Key Master: Chuck Grant</p> <p>School Star Party Chair: Rich Campbell r_photon@yahoo.com</p>	<p>Public Star Party Chair: Rich Campbell</p> <p>Historian: Debbie Dyke</p> <p>Mentor: Mike Rushford rushford@eyes-on-the-skies.org</p> <p>Addresses <i>Mailing:</i> Tri-Valley Stargazers P.O. Box 2476 Livermore, CA 94551</p> <p><i>Lecture Meeting:</i> Unitarian Universalist Church 1893 N. Vasco Road, Livermore</p> <p><i>Board & Discussion Meetings:</i> Round Table Pizza 1024 E. Stanley Blvd., Livermore</p>	<p>Web & E-mail www.trivalleystargazers.org tvs@trivalleystargazers.org</p> <p>Eyes on the Skies Eyes on the Skies is a robotic solar telescope run by Mike Rushford (rushford@eyes-on-the-skies.org). You may access it by visiting www.eyes-on-the-skies.org.</p> <p>TVS E-Group So how do you join the TVS e-group you ask? Just send an e-mail message to the TVS e-mail address (tvs@trivalleystargazers.org) asking to join the group. Make sure you specify the e-mail address you want to use to read and post to the group.</p>
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What's Up *by Debbie Dyke*

All times Pacific Standard Time.

January

- 1 Mon **New Year's Day**
1801 First asteroid (Ceres) discovered by Giuseppe Piazzi.
- 3 Wed **Full Moon.** 5:57 a.m.
Earth at perihelion (91,198,033 miles). 12:00 p.m.
Quadrantid meteors peak. 5:00 p.m.
2004 NASA's Rover Spirit successfully lands on Mars.
- 7 Sun 1610 Galileo discovers Jupiter's moons Io, Europa, and Callisto.
- 10 Wed Moon at apogee (250,687 miles). 8:00 a.m.
- 11 Thur **Last Quarter Moon.** 4:45 a.m.
- 13 Sat 1610 Galileo discovers Ganymede.
- 15 Mon Antares 1.4° , and Jupiter 6.5° , north of the Moon. 6:00 a.m.
- 17 Wed Mercury at greatest heliocentric latitude south.
- 18 Thur **New Moon.** 8:01 p.m.
- 19 Fri **Tri-Valley Stargazers general meeting.** 7:30 p.m. at the Unitarian Universalist Church,
1893 N. Vasco Road, Livermore.
Venus at greatest heliocentric latitude south.
- 20 Sat Venus 4° north of the Moon. 6:00 p.m.
1930 Buzz Aldrin born.
- 21 Sun **Tri-Valley Stargazers discussion meeting.** 2:00 p.m. at the Round Table Pizza on 1024
E. Stanley Blvd., Livermore. Discuss astro stuff with your fellow members.
National Hugging Day.
- 22 Mon Moon at perigee (227,494 miles). 5:00 a.m.
Tri-Valley Stargazers Board meeting. 7:00 p.m. at the Round Table Pizza in Livermore.
- 25 Thur **First Quarter Moon.** 3:01 p.m.
- 27 Sat Moon 6.5° north of the Pleiades (M45). 9:00 p.m.
1967 Apollo 1 capsule catches fire while sitting on launch pad, killing all three astronauts on board.
- 28 Sun 1986 Space Shuttle Challenger explodes soon after liftoff, killing all seven on board.

February

- 1 Thur Moon 3.5° north of Beehive Cluster (M44). 6:00 a.m.
Full Moon. 9:45 p.m.
2003 Columbia breaks apart during reentry, killing all seven on board.
- 2 Fri Saturn 5.5° south of the Moon. 6:00 a.m.
Ground Hog Day.
- 3 Sat Moon occults Regulus. 7:07 a.m.
1966 First soft landing on Moon by the Soviet spacecraft Luna 9. Luna returns the first pictures
of the surface of the Moon.
- 4 Sun 1906 Clyde Tombaugh (discoverer of the now defunct planet Pluto) born.
- 6 Tues 1971 Alan Shepherd (Apollo 14) is the first person to play golf on the Moon.

Space Weather for Air Travelers

by Dr. Tony Phillips

At a time when much of the airline industry is struggling, one type of air travel is doing remarkably well: polar flights. In 1999, United Airlines made just twelve trips over the Arctic. By 2005, the number of flights had grown to 1,402. Other airlines report similar growth.

The reason for the increase is commerce. Business is booming along Asia's Pacific Rim, and business travel is booming with it. On our spherical Earth, the shortest distance from Chicago to Beijing or New York to Tokyo is over the North Pole. Suddenly, business travelers are spending a lot of time in the Arctic.

With these new routes, however, comes a new concern: space weather.

"Solar storms have a big effect on polar regions of our planet," explains Steve Hill of NOAA's Space Weather Prediction Center in Boulder, Colorado. Everyone knows about the Northern Lights, but there's more to it than that: "When airplanes fly over the poles during solar storms, they can experience radio blackouts, navigation errors and computer reboots—all caused by space radiation."

In 2005, United Airlines reported dozens of flights diverted from polar routes by nasty space weather. Delays

ranged from 8 minutes to nearly 4 hours, and each unplanned detour burned expensive fuel. Money isn't the only concern: Pilots and flight attendants who fly too often over the poles could absorb more radiation than is healthy. "This is an area of active research—figuring out how much exposure is safe for flight crews," says Hill. "Clearly, less is better."

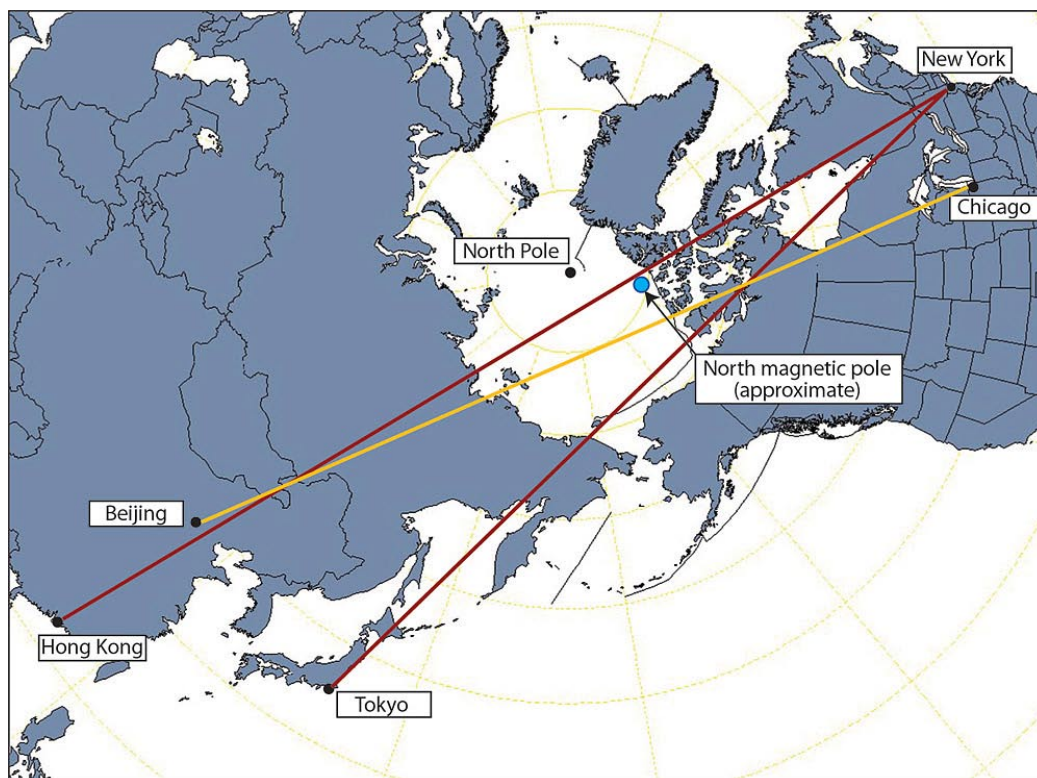
To help airlines avoid bad space weather, NOAA has begun equipping its GOES weather satellites with improved instruments to monitor the Sun. Recent additions to the fleet, GOES 12 and 13, carry X-ray telescopes that take spectacular pictures of sunspots, solar flares, and coronal holes spewing streams of solar wind in our direction. Other GOES sensors detect solar protons swarming around our planet, raising alarms when radiation levels become dangerous.

"Our next-generation satellite will be even better," says Hill. Slated for launch in 2014, GOES-R will be able to photograph the Sun through several different X-ray and ultra-violet filters. Each filter reveals a somewhat different layer of the Sun's explosive atmosphere—a boon to forecasters. Also, advanced sensors will alert ground controllers to a variety of dangerous particles near Earth, including solar protons, heavy ions and galactic cosmic rays.

"GOES-R should substantially improve our space weather forecasts," says Hill. That means friendlier skies on your future trips to Tokyo.

For the latest space weather report, visit the website of the Space Weather Prediction Center at <http://www.sec.noaa.gov>. For more about the GOES-R series spacecraft, see http://goespoes.gsfc.nasa.gov/goes/spacecraft/r_spacecraft.html. For help in explaining geostationary orbits to kids—or anyone else—visit The Space Place at http://spaceplace.nasa.gov/en/kids/goes/goespoes_orbits.shtml.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.



The shortest airline routes from the Eastern U.S. to popular destinations in Asia go very near the magnetic North Pole, where space weather is of greatest concern.

Tri-Valley Stargazers
P.O. Box 2476
Livermore, CA 94551



PRIMEFOCUS

Tri-Valley Stargazers Membership Application

Member agrees to hold Tri-Valley Stargazers, and any cooperating organizations or landowners, harmless from all claims of liability for any injury or loss sustained at a TVS function.

Name _____ Phone _____ e-mail _____

Address _____

Do not release my: _____ address, _____ phone, or _____ e-mail information to other TVS members.

- Membership category: _____ \$5 Student.
_____ \$30 Basic. You will receive e-mail notification when the PDF version of *Prime Focus* is available for download off the TVS web site.
_____ \$40 Regular. You will receive a paper version of *Prime Focus* in the mail.
_____ \$32.95 One year subscription to *Sky & Telescope* magazine.
_____ \$34 One year subscription to *Astronomy* magazine.
_____ \$60 Two year subscription to *Astronomy* magazine.
_____ \$10 Hidden Hill Observatory (H2O) yearly access fee. You need to be a key holder to access the site.
_____ \$20 H2O key holder fee. (A refundable key *deposit*—key property of TVS).
_____ \$40 Patron Membership. Must be a member for at least a year and a key holder.
\$ _____ Tax deductible contribution to Tri-Valley Stargazers.
\$ _____ TOTAL – Return to: Tri-Valley Stargazers, P.O. Box 2476, Livermore, CA 94551

Membership information: Term is one calendar year, January through December. Student members must be less than 18 years old or still in high school.