

PRIME FOCUS

Tri-Valley Stargazers

December 2007



Meeting Info:

What

Holiday Potluck

Who

TVS Members

When

December 21, 2007
Doors open at 6:30 p.m.
Dinner at 7:00 p.m.

Where

Unitarian Universalist
Church in Livermore
1893 N. Vasco Road

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December Meeting

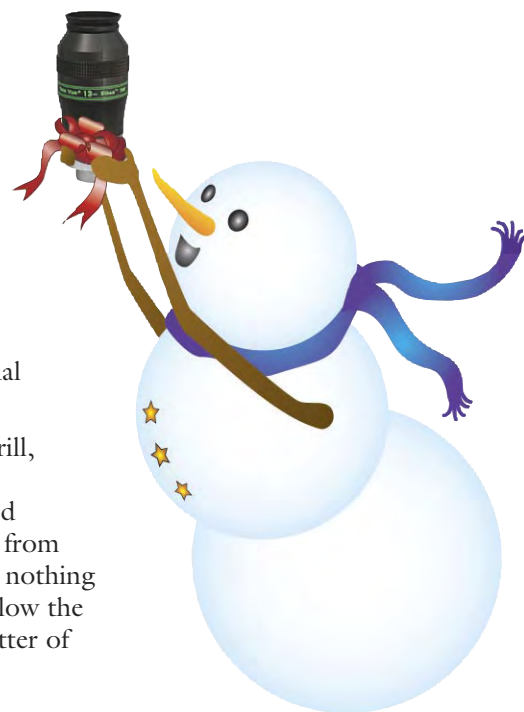
Holiday Potluck
TVS Members

'Tis the season for over-eating and overspending. So why don't you take a break from at least one of those seasonal downfalls and join your fellow TVS members at our annual Holiday Potluck!

For those who don't know the drill, TVS will provide the plastic ware and beverages. Members are asked to bring a dish to share. To keep from having twenty potato salads (and nothing else) from showing up, please follow the guidelines below, using the first letter of your last name.

- A-F Appetizers
- G-L Dessert
- M-R Main Dish
- S-Z Side Dish or Salad

Feel free to bring friends and family to the potluck. The more the merrier!



TVS Membership Renewal Time

Our membership period is from January to December, so 'tis the season for renewing your TVS membership! You can find the renewal form on the back page of the newsletter. Please fill it out and send it in with your check to PO Box 2476, Livermore, CA 94551. You can also give your renewal check and form to our treasurer at the club meetings.

New to our renewal this year is the change in signing up for your discounted rate on subscriptions to *Sky & Telescope* magazines. In the past, subscriptions or renewals to both *S&T* and *Astronomy* magazines needed to be submitted to TVS, which then forwarded them to their respective publishers.

S&T has changed their policy this year. Members now get a renewal notice

News & Notes

in the mail, with the discounted rate shown. Fill it out, and return it to *S&T*, and you're set. The publisher will contact the club once a year to verify your membership. *Astronomy* magazine will continue to follow the procedure for subscribing or renewing through the club. Rates this year are \$32.95 for a 1-year subscription to *S&T*, and \$34/\$60 for a 1- or 2-year subscription to *Astronomy*. If you have questions regarding the subscriptions, contact club Treasurer, David Feindel.

2007-2008 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 January 6th deadline is for the January issue).

Lecture Meeting	Board Meeting	Prime Focus Deadline
Dec 21	Dec 17	Dec 9
Jan 18	Jan 21	Jan 6
Feb 15	Feb 18	Feb 3
Mar 21	Mar 24	Mar 9

Money Matters

At our November board meeting, Treasurer **David Feindel** left word of the TVS account balances as of November 18.

Checking	\$3,393.90	
CD #1	\$3,656.36	matures 11/17/07
CD #2	\$2,578.13	matures 11/27/07

TVS Election Results

In an astonishing non-turn of events, the entire slate of officers and board members have been re-elected to their positions. Congratulations to the movers and shakers of the club in another well run campaign.

It's not too late to become involved with the club. We could still use some help with some of the volunteer positions, like Program Director and Refreshments Coordinator. If you want to help out, please let any officer or board member know (you can find a list of said people in the box at the bottom of the next page).

RASC Handbooks & Calendars

We have received our order of RASC (Royal Astronomical Society of Canada) Handbooks and Calendars.

We will have them available for purchase at our Potluck meeting on December 21st. The Handbooks are \$21, Calendars \$13. Cash or checks (made out to Tri-Valley Stargazers) accepted. If you need one sooner than the 21st, contact Treasurer David Feindel at "feindel1 at com-cast period net" to arrange for an earlier delivery.

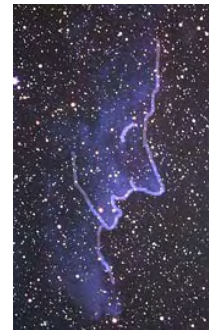
The Handbook is a very useful book filled with all kinds of astronomical data. The calendar features photos taken by amateur astronomers.



It's a witch, it's a witch! The Witch Head nebula (IC2118) in Eridanus. This image is a 2 hour exposure on Fuji Provia 400 color slide film (yes, film!). The picture was taken at Barcroft with a Takahashi FSQ-106 scope on an AP900 mount, with the help of an SBIG STV Autoguider. *Photo: Bill Drelling*



Which witch do you see? With the way the above photo is orientated, you'd see the witch to the left. Flip the image 180° and you'd see the witch to the right.



Newsletter header image: M31-The Andromeda Galaxy (NGC224), along with M32 & M110 companion galaxies.

The Andromeda Galaxy is the closest galaxy to our own Milky Way Galaxy, and is the brightest galaxy visible with the unaided eye in the Northern Hemisphere.

This image was taken in September, 2007 using a 200mm f/5.6 Pentax 67 Takumar, RGB: 90:90:120 minutes, and an ST10XME, 1x1 -20C. *Photo: Gert Gottschalk*

Calendar of Events

December 18, 7:30 p.m.

What: *The Orion Nebula: Where Stars are Born*
Who: Robert O'Dell (Vanderbilt University)
Where: Kanbar Hall, Jewish Community Center
Cost: \$4.00

In the heart of the constellation Orion lies the famous Orion Nebula. This is only the most visible part of the process of star formation that occurs in this region. During the last 15 years observations of the nebula with the Hubble Space Telescope and ground-based infrared sensitive telescopes have revealed that star formation there has extended to within the last 100,000 years, a mere instant as compared with the 13 Billion year age of the universe. This talk will draw heavily on Hubble images made by the speaker and will feature a simulated flying tour through the Orion Nebula and its cluster of young stars.

You can purchase tickets online at <http://www.calacademy.org/lectures/tickets> or buy them at the door. For more information, call 415-321-8000.

The Dean Lectures have temporarily moved to the San Francisco Jewish Community Center at 3200 California Street (at Presidio Avenue) during the reconstruction of the Academy.

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.

December 31, 12:45 p.m. or 3:45 p.m.

What: *New Year's Eve Balloon Drop*
Who: You
Where: Chabot Space & Science Center, Oakland
Cost: Free with General Admission
For reservations, call 510-336-7373

Space is limited, advance reservations required!

This event sells out every year so book early!

Join Chabot for their annual Balloon Drop to cheer the arrival of New Year 2008. The New Year starts at midnight Greenwich Mean Time (4:00 p.m. PST). Celebrate the start of the New Year with music and balloons dropping from the Rotunda, many filled with prizes.

The Discovery Lab Balloon Drop for the 5 and under age group is already sold out for both times. There is still room at both times for the 6+ age group in the Rotunda.



Officers

President:

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David Woolsey
fatdawg@comcast.net

Board of Directors

Alane Alchorn, Jim Alves,
Debbie Dyke, Gert Gottschalk,
Stan Isakson, Mike Rushford,
John Swenson.

Volunteer Positions

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Key Master:

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Rich Campbell

Historian:

Debbie Dyke

Mentor:

Mike Rushford
rushford@eyes-on-the-skies.org

Addresses

Mailing:

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

Lecture Meeting:

Unitarian Universalist Church
1893 N. Vasco Road, Livermore

Board & Discussion Meetings:

Round Table Pizza
1024 E. Stanley Blvd., Livermore

Web & E-mail

www.trivalleystargazers.org
tvst@trivalleystargazers.org

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.

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 (tvst@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.

What's Up *by Debbie Dyke*

All times Pacific Standard Time.

December

- 9 Sun **New Moon.** 9:40 a.m.
- 12 Wed Vesta 2° from the Moon, low in the southwest. 6:00 p.m.
- 14 Fri Geminid meteors peak. 9:00 a.m.
1972 Gene Cernan (Apollo 17) becomes the last man on the Moon.
- 15 Sat Asteroid Pallas brushes past the Moon by less than 4". 4:30 p.m. Pallas will remain within 1° from the Moon during the evening.
Mercury at aphelion.
- 16 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.
- 17 Mon **First Quarter Moon.** 2:17 a.m.
Mercury in superior conjunction. 7:00 a.m.
Tri-Valley Stargazers Board meeting. 7:30 p.m. at the Round Table Pizza in Livermore.
- 19 Wed Mars makes its closest approach to the Earth. 11:00 a.m.
- 20 Thur Saturn stationary. 12:20 p.m.
Pluto in conjunction with the Sun. 4:00 p.m.
- 21 Fri **Tri-Valley Stargazers general meeting.** 7:30 p.m. at the Unitarian Universalist Church, 1893 N. Vasco Road, Livermore.
Winter Solstice. 10:08 p.m.
The Moon passes less than 4° from the Pleiades (M45). 7:30 p.m.
1978 Venera 12 lands on Venus. Temps hover in the 860° F range.
- 22 Sat Venus at greatest heliocentric latitude north. 2:00 p.m.
Moon at perigee (223,705 miles) 2:00 a.m.
Ursid meteors peak. 5:00 p.m.
Jupiter in conjunction with the Sun. 10:00 p.m.
- 23 Sun **Full Moon.** 5:16 p.m.
Mars just 22" from the Moon at 5:30 p.m. By 9:00 p.m. the pair are 2° apart. M35 is just 2.5° south of Mars.
- 24 Mon Mars at opposition. 12:00 p.m.
1968 Apollo 8 astronauts (Frank Borman, Frank Lovell, William Anders) are first to orbit the Moon.
- 25 Tue **Christmas Day.**
The Beehive Cluster (M44) 3.5° below the Moon. 9:00 p.m.
- 26 Wed The Moon occults the Beehive Cluster (M44). 5:00 a.m.

January

- 1 Tue **New Year's Day**
- 2 Wed Earth at perihelion (91,199,797.76 miles). 7:15 a.m.
- 3 Thur Moon at apogee (251,305 miles). 12:00 a.m.
Quadrantid meteor shower peaks. 11:00 p.m.
2004 NASA's Rover Spirit successfully lands on Mars.
- 6 Sun **First Quarter Moon** 10:56 a.m.
- 7 Mon 1610 Galileo discovers Jupiter's moons Io, Europa, and Callisto.
- 8 Tue Mars 1.3° south of the Moon. 12:00 p.m.

Going My Way?

by Diane K. Fisher

Not many endeavors require that you plan the mode of transportation before you even know what it is you are transporting. But weighing the physics and economics of getting any sort of cargo to space is a major part of designing a space mission.

It's one of the first issues that NASA's New Millennium Program (NMP) considers when planning a new mission. NMP has the forward-looking job to identify promising new technologies for space exploration. It then helps to mature the technology so it will be available to space missions of the future. If the technology cannot be tested adequately on Earth, the last part of this process is to actually send the technology into space. With carefully documented test results, future mission planners can confidently incorporate the new technology into their designs.

But where to begin? On call from the start, Linda Herrell is the New Millennium Program Architect. Given a list of proposed technologies, she has the job of figuring out the feasibility of wrapping a mission around them.

"We might be considering six or more technologies, anything from solar panels to imagers to masts for solar sails to more intelligent software. Of those, we may choose four. My job is to answer the question—can the selected technology be transported to and operated in space within the constraints of a low-cost technology validation project?"

Along with the list of possible mission payloads (the technologies), Linda also has a list of spacecraft to put them on, as well as a list of launch vehicle parameters. *All* she has to do is try them out in every possible combination (of which there are thousands) and see what might work.

"Fortunately, we have a software tool to help with this analysis," says Linda. When it comes down to it, her job is primarily to figure out how to get the technologies into space.

"Sometimes, it's like figuring out how to get across town when you don't have your own car. You have to get creative."

She keeps a database of all possible options, including riding piggyback on another spacecraft, hitching a ride on a launch vehicle as a secondary payload, or sharing a launch vehicle with other NASA, Department of Defense, or even commercial payloads.

Her assessment is but one of a gazillion factors to be considered in planning a mission, but it is indeed one of the very first "details" that forms the foundation for the rest of the mission.

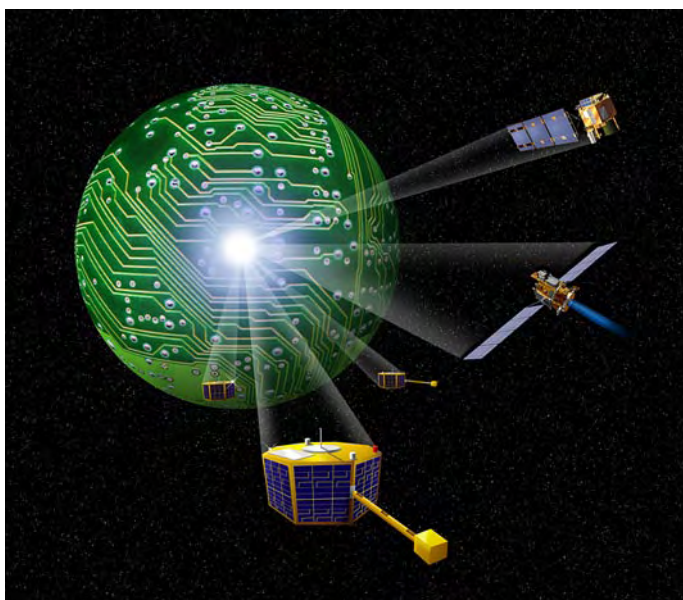
Find out some of the technologies that NMP has already validated or is considering at nmp.nasa.gov/TECHNOLOGY/innovative-tech.html. Kids will enjoy watching Linda's cartoon alter-ego talk about her job at spaceplace.nasa.gov/en/kids/live.

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

Play "New and Improved" Space Place Trivia!

Covering everything from asteroids to zodiac, the Space Place Trivia game tests your acquaintance with just about every part of the extensive NASA kids website, The Space Place. Read the term in big red letters (with pronunciation guide), then pick the one sentence out of three in which the word makes sense (instead of non-sense). Recently updated to include newly added topics and activities on the site, the game links each term to the page or activity that explains or demonstrates it. So those "Oop-sies" can quickly be converted to "Right-o's!" Go to <http://spaceplace.nasa.gov> and click on "Games."

Besides the Trivia game, there are many other activities to be found on the "Games" page. Kids can pilot a blimp through all kinds of weather in the "Wild Weather Adventure" board game, plan what to bring on a Mars mission, navigate through a maze, solve a crossword puzzle, and play word games.



NASA's New Millennium Program selects breakthrough technologies that will be of the greatest use to future space and Earth science missions and that are perceived to be risky to the first user.

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.
 - _____ \$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.
 - _____ \$34 One year subscription to *Astronomy* magazine.
 - _____ \$60 Two year subscription to *Astronomy* magazine.
 - _____ \$32.95 One year subscription to *Sky & Telescope* magazine. **Note:** Subscription to *S&T* is for new members only. Existing members please renew directly through *S&T*.
 - \$ _____ 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.