

PRIME FOCUS

Tri-Valley Stargazers

June 2006



Meeting Info:

What

Summer BBQ

Who

TVS Members

When

June 16, 2006

Set up 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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June Meeting

Summer BBQ

TVS Members

We can't wait for summer to begin, so we're having our Summer BBQ a few days before the official start of summer.

TVS will provide the burgers and veggie burgers, condiments, sodas, and all plastic and paper ware. Members are asked to bring a food dish to share. General rule of thumb is bring enough to feed eight people.

As to what to bring, see the list below. Use the first letter of your last name to determine which type of dish to bring.

- A-F Dessert
- G-L Appetizers
- M-R Green or Fruit Salad
- S-Z Macaroni or Potato Salad

Note the earlier start time—6:30 to set up the tables and chairs, and to get the charcoal started. We'll start eating at 7:00. After dinner, if the skies are clear we'll pull out our loaner scopes and do a little stargazing. Friends and family are welcome to join us for the BBQ.



Local Amateur Astronomers in the News

The Bay Area astronomy community is lucky to have such notable amateurs among their ranks.

TVS member **Ron Bissinger** reports on his group's efforts to detect an extra-solar system planet:

Finally, the amateurs have done it!

Today the Space Telescope Science Institute announced the discovery of a new exoplanet that also happens to be transiting its parent star. Over 100,000 stars were surveyed by a small CCD camera setup on Maui for several years, identifying numerous candidates for detailed follow up photometry by four amateurs astronomers, myself included.

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News & Notes

In 2005 I was screening a dozen candidates and to my surprise, one immediately looked like an exoplanet.

The STScI press release can be found at <http://hubblesite.org/newscenter/newsdesk/archive/releases/2006/22/full>.

See my web site at <http://ronbissinger.home.comcast.net/favorite.htm> for a write-up on my role in the discovery.

The paper has been accepted for publication in the *Astrophysical Journal* and can be found at http://arxiv.org/PS_cache/astro-ph/pdf/0605/0605414.pdf.

Hopefully this success will draw more amateur astronomers into the search for exoplanets.

In part, the STScI press release states “McCullough’s planet-finding technique involves nightly sweeps of the sky using the XO telescope in Hawaii to note the brightness of the stars it encounters. A computer software program sifts through many thousands of stars every two months looking for tiny dips in the stars’ light, the signature of a possible planetary transit. The computer comes up with a few hundred possibilities. From those candidates, McCullough and his team select a few dozen promising leads. He passes these stars on to the four amateur astronomers to study the possible transits more carefully.

From September 2003 to September 2005, the XO telescope observed tens of thousands of bright stars. In that time, his team of amateur astronomers studied a few dozen promising candidate stars identified by McCullough and his team. The star XO-1 was pegged as a promising candidate in June 2005. The amateur astronomers observed it in June and July 2005, confirming that a planet-sized object was eclipsing the star.”

And Chabot Space & Science Center’s staff astronomer **Conrad Jung** has been recognized by the Smithsonian’s National Air and Space Museum, where three of his photographs are currently on display in the “Explore the Universe” exhibition.

Chabot’s press release reads in part:

Normally shy and unassuming, Conrad Jung, astronomer at Chabot Space & Science Center, has been guiding people through the night skies since 1975. Jung is also a very fine astrophotographer, and the caliber of his work has recently been recognized by the Smithsonian’s National Air and Space Museum, where three of his photographs are currently on display in the “Explore the Universe” exhibition. Jung’s photos include images of

the Pleiades, the Trifid Nebula, and a total lunar eclipse sequence, and will be on display, both in the gallery and online, until the end of June. The ongoing feature, called “First Light”, highlights some of the wonders of our universe as seen and captured by amateur astronomers, and recognizes the fact that new technologies and innovative uses of old technologies have made it possible for just about anyone to capture fascinating images of the sky.

Jung uses a Canon 20D digital SLR camera mounted on a 7-inch Schmidt-Cassegrain telescope, so that the telescope acts as a large lens for the camera. “Unlike most Schmidt-Cassegrains popular with amateur stargazers, this one is designed only with photography in mind, and has a focal ratio of $f/4$,” Jung explains. “To help me get more magnified images of some of the objects that I photograph, I sometimes employ 1.4x and 2.0x teleconverters. I had been using film for almost all of my astrophotography, but just over a year ago I got my first digital SLR—a Canon EOS 20D—and began doing all my deep-sky astrophotography with that.”

For guiding, he uses a SBIG STV autoguiding CCD camera attached to a short 80mm refractor. The camera, the guider, and the telescope are mounted on a Losmandy G-11 model equatorial mount. It has been his workhorse mount for more than ten years.



Jung’s striking photos can be seen on the Smithsonian web site at <http://www.nasm.si.edu/exhibitions/gallery/universe/firstlight/feature.cfm?ID=94>. Images of Mars, Saturn, Jupiter, supernovas, galaxies and other celestial objects taken by Jung through Chabot’s three telescopes can be seen in Chabot’s online Astrophoto Gallery at <http://www.chabotspace.org/vsc/observatory/astrophotos.asp>. Visitors are invited to meet Jung in person on most Friday and Saturday evenings when Chabot’s telescopes are open for free public viewing (weather permitting). Currently, the telescopes are trained on Jupiter, the Ring Nebula and star clusters. Affable, low-key and patient, Jung is always happy to answer any questions about what’s up in the sky.

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Newsletter header image: M81 and M82

The lovely pair of galaxies found in Ursa Major has been beautifully photographed by TVS member Ken Sperber. The image details are: Takahashi FS-102 at $f/6$, ST-2000XM, L(6x10min), RGB (3x5min; 2x2 bin). *Photo: Ken Sperber*

Calendar of Events

June 19, 7:30 p.m.

What: *The First Stars in the Universe*
Who: Dr. Aparna Venkatesan (Univ. of Colorado)
Where: S.F. Jewish Community Center
Cost: \$4

Modern cosmological observations imply that the first stars in the universe were unique objects that strongly influenced their environment, despite their brief existence. This talk will present the current data and theoretical ideas on these stars, and how future telescopes can detect them.

This lecture is part of the Morrison Planetarium Benjamin Dean Lecture Series.

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

All programs begin at 7:30 pm in Kanbar Hall at the Jewish Community Center of San Francisco, 3200 California Street. Tickets are \$4 and are available in advance or at the door. For more information, call 415-750-7141.

July 1, 8:30 p.m.

What: *A 'Swift' View of the Universe*
Who: Dr. Lynn Cominsky (Sonoma State Univ.)
Where: Mt. Tamalpais Mt. Theater (www.mttam.com)
Cost: Free

NASA's Swift mission studies gamma-ray bursts, the most powerful explosions in the Universe. Learn how black holes are created when stars die, and how one galactic neutron starquake changed our Earth's atmosphere.

The program is FREE and open to the general public. Families, students and youth groups are encouraged to attend. The Madrone Picnic area is reserved from 6:30 p.m. and the talk will be followed by telescope viewing in the Rock Spring Parking Area until around 11:30 p.m. Dress warmly and bring a flashlight. Carpool if possible.

If you can volunteer to help out, call Tinka Ross at 415-454-4715.

Sponsored by your State Park, assisted by the Mount Tamalpais Interpretive Association and telescopes courtesy of the San Francisco Amateur Astronomers.

If the weather is iffy the day of the program, call the hotline 415-455-5370. The message changes around 3:00 p.m., but only if there is a cancellation. If the programs will go as scheduled the tape will not be updated. You can also check with SFAA at 415-289-NOFOG.

Star Parties Around the Country

Here's an updated list of upcoming star parties from places far and wide (and a few close to home).

Shingletown Star Party - June 21 to 26

For those of you interested in a June dark sky event; the Shingletown Star Party still has room for more attendees. The event is held from June 21st to June 26th at the Shingletown airstrip below Mt. Lassen. For more information, visit <http://www.shingletownstarparty.org>.

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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.

Calendar of Events *continued*

This year's grand door prize is a William Optics ZS-80 (semi-APO) with Dielectric Focuser, minus violet filter and upgraded focuser.

Grand Canyon Star Party - June 17-24

Hosted by the Tucson Amateur Astronomy Association. <http://www.tucsonastronomy.org/gcsp.html>.

Yosemite Star Party - June 30th thru Sept 4th

<http://aanc-astronomy.org/yosemite.html>. Various clubs in the Bay Area take part in giving star parties to Yosemite visitors in exchange for free camping at Bridalveil Campgrounds. This year TVS will have our Yosemite Star Party on Labor Day weekend, September 1st through the 4th. Dave Rodrigues is our Yosemite coordinator.

Stellafane - July 28-29

Located in Vermont it's a bit of a drive, but Stellafane is renowned for being one of the premier star parties in America. <http://www.stellafane.com>.

White Mountain Star Party - Aug. 17-24

This year the joint TVS-EAS high altitude star party takes place from Thursday, August 17 through the 24th. As is tradition, the first night is spent getting acclimated to higher altitudes while at the Grandview Campgrounds (8,000' elevation). Friday through Thursday is at the Barcroft High Altitude Research Station (12,400' elevation). For a view of the site, visit www.wmrs.edu/facilities/BAR/default.htm.

Attendees can choose how many days they would like to stay at Barcroft. The cost is \$55 per person, which includes a bunk bed in a dormitory setting, very good food, and very dark skies. If you are interested in the star party, contact the trip coordinator, Dave Rodrigues, at 510-483-9191.

FPOA 20th Year Anniversary Party, John Dobson Day & Night and AANC Awards StarBQ - Aug 26th

No info posted yet, but you can periodically check <http://www.fpoa.net> for updates as the time draws near.

CalStar - Sept. 21-23

This star party is at Lake San Antonio and is hosted by the San Jose Astronomical Association. <http://www.sjaa.net/calstar>. Registration doesn't begin until August 28th. There is no fee for the star party, but the park does have a camping fee.

News & Notes *continued*

2006 TVS Meeting Dates

Below are 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 July 9th deadline is for the July issue).

Lecture Meeting	Board Meeting	Prime Focus Deadline
June 16	June 29	June 4
July 21	July 24	July 9
Aug. 18	Aug. 21	Aug. 20
Sept. 15	Sept. 18	Sept. 3

H2O Combination

The combination for our observing site gate lock has changed. If you are a key holding member who has paid the \$10 site access fee, you can get the new combination from Treasurer David Feindel.

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Comet 73P/Schwassmann-Wachmann 3-C (the "C" fragment) just a few hours after it passed M57 the night of May 8th. LRGB composite taken with an ST-10XME CCD camera through a Takahashi FSQ-106 from my backyard here in Pleasanton; processed using MaximDL and Photoshop. *Photo by: Ron Bissinger*

Astro Events



The damage to the roof is quite obvious. Photos: Ken Sperber

H2O Storm Damage

Sometime during the storms of March and April, a large section of the H2O observatory roll roofing material was blown off, exposing the plywood under structure. Since the damage was not discovered until the beginning of May, the plywood has had time to crack and blister. We may have to replace the roof, which we just installed last summer—an expensive undertaking.



Close-up of the damage.

A work party will be organized to do what we can to repair the roof, or at the very least, come up with a game plan to replace the roof. In addition, there is still some work left to be done in replacing and painting some of the wall sections that have warped over time.

The work party date(s) will be announced on the eGroups list, as well as be posted on the TVS web page. This may end up being a two day project, so we could use all the help we can get. No prior roofing experience is required, but it certainly would be helpful. If you do decide to help out, be sure to wear cool grungy work clothes as you're guaranteed to get tar somewhere on your clothes (and it doesn't really come off), and we'll be working on a hot day in order for the tar to flow more easily. (If it's too cool, the tar is less viscous and more difficult to apply.)

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Jupiter Transits

Below is a few listings of transit times for various Jupiter related objects. The abbreviations are fairly straight forward: G=Ganymede, C=Callisto, I=Io, E=Europa, GRS=Great Red Spot, and if you see a 's' next to one of the moons, it means its shadow (e.g., Cs=Callisto's shadow); na means Jupiter is below the horizon or it is daylight at that time.

June

Sat 10	GRS	na	12:03a	2:00a
	GRS	na	8:00p	10:00p
	E	9:35p	10:51p	12:07a
	Es	11:14p	12:19a	1:44a
Mon 12	GRS	na	9:40p	11:33p
Wed 14	I	na	na	9:04p
	Is	na	8:43p	9:55p
	GRS	9:24p	11:17p	1:13a
Fri 16	GRS	11:13p	12:46a	2:50a
Sat 17	E	11:56p	1:12a	2:30a
	Es	1:50a	2:55a	na
Mon 19	GRS	8:25p	10:19p	12:23a
Wed 21	I	8:44p	9:46p	10:53p
	Is	9:43p	10:37p	11:49p
	GRS	10:08p	11:58p	1:57a
Thurs 22	Gs	10:13p	11:00p	12:00a
Sat 24	GRS	na	9:31p	11:33p
Sun 25	E	2:20	na	na
Wed 28	I	10:33p	11:36p	12:42a
	GRS	11:00p	12:46a	na
	Is	11:38p	12:32a	1:45a
Thurs 29	GRS	na	8:45p	10:43p
	G	9:47p	10:43p	11:44p
Fri 20	Gs	2:13a	na	na

July

Sat 1	GRS	8:30p	10:14p	12:05a
Wed 5	Es	na	9:27p	10:51p
	GRS	11:47p	1:30a	na
Thurs 6	I	12:24a	1:27a	na
	Is	1:31a	na	na
	GRS	9:28p	11:26p	na
Fri 7	I	na	na	9:00p
	Is	na	8:54p	10:06p
Sat 8	GRS	9:15p	11:00p	1:00a

What's Up *by Debbie Dyke*

All times Pacific Daylight Saving Time unless otherwise noted.

June

- 9 Fri 1812 Johann Galle (Neptune discoverer) born.
- 11 Sun **Full Moon.** 11:03 a.m.
- 15 Thurs **Mars in the Beehive Cluster (M44).** 9:30 p.m. Photo op!
- 16 Fri **Tri-Valley Stargazers Summer BBQ.** 7:00 p.m. at the Unitarian Universalist Church, 1893 N. Vasco Road, Livermore.
Pluto at opposition. 10:00 a.m.
Moon at perigee (228,729 miles). 10:00 a.m.
1963 Valentina Tereshkova becomes the first woman in orbit.
- 17 Sat **Mars 0.5° North of Saturn.** 9:30 p.m.
- 18 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.
Last Quarter Moon. 7:08 a.m.
Father's Day.
1983 Sally Ride becomes the first U.S. woman in space, 20 years after USSR sent Valentina up for a spin.
- 19 Mon **Tri-Valley Stargazers Board meeting.** 7:00 p.m. at the Round Table Pizza in Livermore.
Uranus stationary. 9:00 a.m.
- 20 Tues Mercury at greatest elongation East (25°). 1:00 p.m.
- 21 Wed **Summer Solstice. 5:26 a.m.**
The Shingletown Star Party starts today and runs through the 26th.
- 22 Thurs **The Moon 0.3° North of the Pleiades and 6° North of Venus in the early morning.** 5:00 a.m.
1675 Royal Greenwich Observatory founded.
1978 James Christy discovers Pluto's satellite Charon.
- 25 Sun **New Moon.** 9:05 a.m.
1178 Five British monks observe an impact on the crescent Moon. Theory has it that the resulting crater is the one we know as Giordano Bruno.
- 26 Mon Mars at aphelion.
1730 Charles Messier born.
- 28 Wed Mars 2.5° South of the Moon during the evening. Saturn lurks by at 7.5° from the Moon.
- 30 Fri 1905 Einstein submits his new theory of special relativity.
1908 An asteroid breaks up and explodes over Siberia near Tunguska with the force of a hydrogen bomb. UFO conspirators go nuts.

July

- 1 Sat Moon at apogee (250,757 miles).
- 3 Mon **First Quarter Moon.** 9:37 a.m.
Earth at aphelion (94,299,334 miles). 4:00 p.m.
- 4 Tues Independence Day.
Mercury at aphelion.
1054 Chinese astronomers, and possibly Native Americans, observe the Crab Nebula supernova.
1868 Henrietta Swan Leavitt born. Henrietta discovered over 2,400 variable stars and the relationship between period and luminosity in Cepheid variables.
1997 Mars Pathfinder lands on Mars.
- 11 Tues 1979 Skylab re-enters the Earth's atmosphere.
- 14 Fri 1965 Mariner 4 makes first flyby of Mars and takes pictures.

Not A Moment Wasted

by Dr. Tony Phillips

The Ring Nebula. Check. M13. Check. Next up: The Whirlpool galaxy.

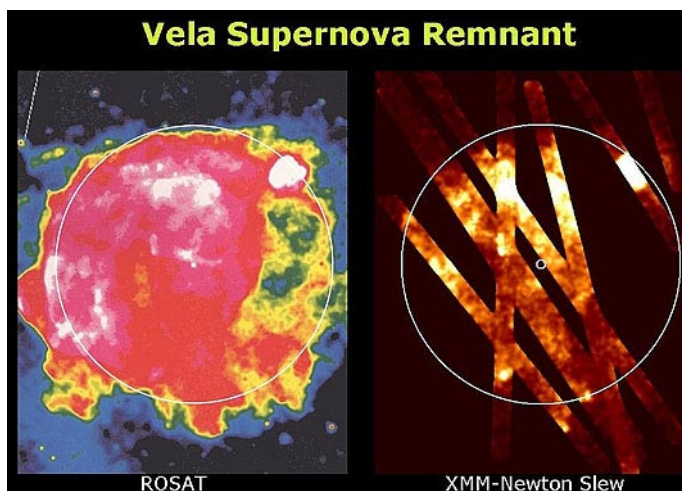
You punch in the coordinates and your telescope takes off, slewing across the sky. You tap your feet and stare at the stars. These Messier marathons would go much faster if the telescope didn't take so long to slew. What a waste of time!

Don't tell that to the x-ray astronomers.

"We're putting our slew time to good use," explains Norbert Schartel, project scientist for the European Space Agency's XMM-Newton x-ray telescope. The telescope, named for Sir Isaac Newton, was launched into Earth orbit in 1999. It's now midway through an 11-year mission to study black holes, neutron stars, active galaxies and other violent denizens of the Universe that show up particularly well at x-ray wavelengths.

For the past four years, whenever XMM-Newton slewed from one object to another, astronomers kept the telescope's cameras running, recording whatever might drift through the field of view. The result is a stunning survey of the heavens covering 15% of the entire sky.

Sifting through the data, ESA astronomers have found entire clusters of galaxies unknown before anyone started paying attention to "slew time." Some already-known galaxies have been caught in the act of flaring—a sign, researchers believe, of a central black hole gobbling matter from nearby stars and interstellar clouds. Here in our own galaxy, the 20,000 year old Vela supernova remnant has been expanding. XMM-Newton has slewed across it many times, tracing its changing contours in exquisite detail.



The image on the left is the Vela Supernova Remnant as imaged in X-rays by ROSAT. On the right are some of the slew images obtained by XMM-Newton in its "spare" time.

The slew technique works because of XMM-Newton's great sensitivity. It has more collecting area than any other x-ray telescope in the history of astronomy. Sources flit through the field of view in only 10 seconds, but that's plenty of time in most cases to gather valuable data.

The work is just beginning. Astronomers plan to continue the slew survey, eventually mapping as much as 80% of the entire sky. No one knows how many new clusters will be found or how many black holes might be caught gobbling their neighbors. One thing's for sure: "There *will* be new discoveries," says Schartel.

Tap, tap, tap. The next time you're in the backyard with your telescope, and it takes off for the Whirlpool galaxy, don't just stand there. Try to keep up with the moving eyepiece. Look, you never know what might drift by.

See some of the other XMM-Newton images at <http://sci.esa.int>. For more about XMM-Newton's Education and Public Outreach program, including downloadable classroom materials, go to <http://xmm.sonoma.edu>. Kids can learn about black holes and play "Black Hole Rescue" at The Space Place, <http://spaceplace.nasa.gov>, under "Games."

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

News & Notes *continued*

June Star Parties

We have another H2O Open House and a school star party request during this month.

The H2O Open House is on Saturday, June 17th. We'll meet at the corner of Mines & Tesla at 7:00 p.m. to caravan down to the site. There is a \$3 per car entrance fee (exact change). For those of you who are unfamiliar with the site, there is no electricity and no running water. The only amenities are dark skies, a large scope, and pit toilets.

There is a place to eat just down the road (*The Junction*) at the junction of Mines, San Antonio Valley, and Del Puerto Canyon Roads. However, the likelihood of it being open for a midnight snack is slim, so bring whatever food and drink you'll need to sustain yourself for the evening.

On Wednesday, June 21st (Summer Solstice!), we need volunteers to help with a star party for Camp Taylor, part of Camp Arroyo in Livermore. The camp is a summer camp for kids with serious heart ailments (<http://www.kidshheartcamp.org>). There is a large field for setting up scopes. The group would also like us to be there on Thursday, July 20th for another star party.

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.