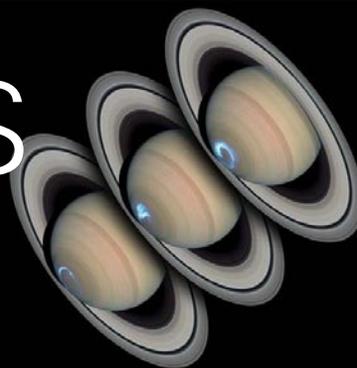


PRIME FOCUS

Tri-Valley Stargazers



March 2005



Meeting Info:

What

How to Put on an Astronomy Program

Who

TVS Members

When

March 18, 2005
Conversation 7:00 p.m.
Lecture 7:30 p.m.

Where

Unitarian Universalist
Church in Livermore
1893 N. Vasco Road

Inside

News & Notes	2
Calendar of Events	3
Astro Events	4
First Light	5
Astronomical Insights	5
What's Up	6
NASA's Space Place	7
Membership/Renewal Application	8

March Meeting

How to Put on an Astronomy Program
TVS Members

Among our family and friends, we are the astronomy experts. Because of this, they sometimes ask us about some astronomy related items in the news, wanting us to explain what they heard. Or, we may be asked to do a presentation for our kid's class. Maybe a niece asks us to help out with her Girl Scout group's quest for an Astronomy Badge.

We'd like to help, but are terrified at the prospect of conducting an astronomy program for a group of strangers. It's one thing to drag a scope out and point it at a few celestial objects for a small group, but quite another to conduct a 30 to 60 minute presentation.

What do you do? Slides? Powerpoint? What should you talk about? What will grab the kid's attention and keep them interested?

Lucky for you, a couple of groups have done a lot of work in compiling and testing presentations and projects suitable for kids—Project Astro and the NASA's Night Sky Network. Between the two, you'll have plenty of material to draw from.

For our meeting, we'll delve into the Project Astro binder and the Night Sky Network box. Together, we'll stumble through several projects and learn from our mistakes. We haven't decided which projects to do just yet as there are a wealth to choose from.

By the end of the evening, you'll come away with several projects you can lead the next time you're asked to give a presentation to a group. You'll have the instructions and the experience in making your presentation a successful one. Join us for an evening of exploration and learning, and a lot of fun!

For more information, visit the Project Astro web site www.astrosociety.org/education/astro/project_astro.html and the Night Sky Network web site <http://nightsky.jpl.nasa.gov/index.cfm>.



Rich Campbell conducts an astronomy program for a school group.

News & Notes

Welcome!

TVS would like to welcome our newest member **Suzanne Harding**.

2005 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 March 6th deadline is for the March issue).

Lecture Meeting	Board Meeting	Prime Focus Deadline
Mar. 18	Mar. 21	Mar. 6
Apr. 15	Apr. 18	Apr. 3
May 20	May 23	May 8
June 17	June 20	June 6

Money Matters

At the February Board meeting, Treasurer **Gary Steinhour** reported the TVS account balances (as of February 20, 2005):

Checking	\$2,030.08	
CD #1	\$3,457.00	matures 05/17/05
CD #2	\$2,438.11	matures 02/27/05
CD #3	\$1,077.26	matures 04/16/05

School Star Parties

We have some school star parties planned for the latter part of March. First up is a double header on Sunday, March 20th.

One star party will be at our meeting location, the Unitarian Universalist Church. We'll have about twelve 4th and 5th grade Sunday School kids at the star party. Set up is at 6:30 p.m. We need someone to be the TVS leader for this star party.

The other is at the Pleasanton Middle School with TVS member, and P-town Middle School teacher, Debi Mintz. The kids at this star party are part of the school's astronomy club and will have a few scopes of their own. But the more the merrier! Start time is 30 minutes after sunset on the basketball courts behind the school (use the side drive to get there).

For both star parties, clouds cancel.

A few days later, Wednesday the 23rd, is the Pleasanton School District's Science Fun Fair at the Alameda Co. Fairgrounds in Pleasanton. Those of you who have participated in this event in the past can attest to the large turnout at the fair. This year's attendance is expected to be 14,000. Not all make their way to the TVS table or out to the scopes, but even if only 1% visit us that will still be

140 adults and kids wanting to look through our scopes.

TVS can certainly use lots of volunteers with telescopes, as well as a few volunteers inside manning our table. If it's cloudy, we'll still want a couple of people at the table inside. If you're interested, contact Debbie Dyke at ddfam@pacbell.net or 925-461-3003.

Star Party Dates

We've nailed down a few of the TVS star party dates:

Yosemite	July 29-30
H2O Open House	May 28, June 25, August 27
White Mountains	Tentatively scheduled to follow the Yosemite trip.

And here's some non-TVS star parties:

Shingletown July 6 - July 11

Located just 17 miles from Mt. Lassen, the Shingletown Star Party is a fun and unique event, drawing hundreds of amateur astronomers from around the western US. The event is held at the Shingletown Airport (don't worry...no airplanes) boasting dark skies and lots of daytime activities as well.

Registration is now open! This year's attendance is limited to 300 attendees. To register or to get more information, visit www.shingletownstarparty.org. Download the flyer at www.shingletownstarparty.org/ssp.2005.flyer.pdf.

Grand Mesa Star Party June 10 - June 12

The Western Colorado Astronomy Club is hosting its annual Grand Mesa Star Party. The observing/camping site is located atop the Grand Mesa, about 45 miles east of Grand Junction, CO at an elevation of 10,600'. Last year's attendance was over 100, with magnitude 7 skies and a surprise auroral display. Daytime activities will feature guest speakers, a pot-luck supper on June 11th, and the ever popular raffle of door prizes from numerous companies and vendors. Admission is \$15 per person.

For information and registration forms visit www.coloradowestastronomy.org/SP05.html. For a map of the site go to www.coloradowestastronomy.org/mesamap.html

continued page 7

Newsletter header image: Auroras on Saturn.

Originally, Saturn's auroras were thought to be a cross between those on Earth and Jupiter. Saturn's auroras can last for days.

When Saturn's auroras become brighter (and thus more powerful), the ring of energy encircling the pole shrinks in diameter. The auroras also become brighter on the part of the planet where night turns to day as the storms increase in intensity.

Photo by: NASA, ESA, J. Clarke (Boston Univ.) and Z. Levay (STScI)

Calendar of Events

March 19, 2005, 7:00 p.m.

What: *Healdsburg Glass and the Tektite Question*
Who: D. Rolfe C. Erickson (Sonoma State Univ.)
Where: Mt. Tam
Cost: Free

This just in from Tinka Ross, co-ordinator of the astronomy programs:

Spring is nearly here, which means the start of another series of astronomy programs on Mt Tam, our 17th year!

We start on Saturday, March 19, at 7:00 p.m. with a talk on *Healdsburg Glass and the Tektite Question* by D. Rolfe C. Erickson from Sonoma State University.

Small, dark, glassy rocks being found in local vineyards may be evidence that the area was struck by an ancient asteroid. Maybe you have collected some tektites yourself without realizing it. You can bring your picnic dinner to the theatre and talk with Dr. Erickson before the program. Weather permitting there will be viewing after the talk.

The entire series can be found at www.mttam.net.

2005 Astronomical Diaries are still available. \$10 at the programs, \$11 by mail to cover postage and handling. Checks payable to MTIA. Send to Tinka Ross, 89 Dominican Drive, San Rafael, CA 94901.

Be part of the Mt Tam Astronomy Programs.

Volunteers are needed to keep these programs going. We need YOU to become a VIP (Volunteers In Parks, also Very Important Person). No experience is necessary. You can park cars, greet the audience, or help set up and take

down our equipment, and still enjoy the speaker and observing session.

Participants need to attend a one-time, two hour orientation before working as a State Park VIP. Volunteer orientations with Interpretive Ranger Sam Toffoli will be held before the astronomy programs on March 19 (4-6 p.m.), May 14 (5-7 p.m.) and July 9 (5-7 p.m.). Call Tinka at (415) 454-4715 or send an e-mail to her at tinkaross@comcast.net and sign up now to insure that our programs will continue.

March 20, 2005, 12:00 p.m. & 5:00 p.m.

What: *Sun-Earth Day: Ancient Observatories, Timeless Knowledge*

Who: You

Where: Chabot Space & Science Center, Oakland

Cost: Free with General Admission

This year's theme features solar alignments with structures that mark the equinoxes and/or solstices. The program will feature several sites including: Chaco Canyon (New Mexico), Hovenweep (Utah), and Chichen Itza (Mexico). Many of these sites present unique opportunities to develop authentic cultural connections to Native Americans, highlighting the importance of the Sun across the ages. Activities at Chabot on this day will include solar viewing, live webcast of a solar alignment from Mexico (2:00-3:00 p.m.), sun videos, various hands-on activities and demos, and planned showings of the large format film *Solarmax* and the planetarium show *By the Light of the Sun*.

continued page 4

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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*

March 20, 2005, 12:30 p.m.

What: *Searching for Extra Terrestrial Life*

Who: Various

Where: Lawrence Hall of Science, Berkeley

Cost: \$3.00

This series of talks is connected with the exhibit "Alien Earths" at UC Berkeley's Lawrence Hall of Science on Centennial Drive below Grizzly Peak in the Berkeley Hills. General information: (510) 642-5132. Web site and map: www.lawrencehalloffscience.org.

The Alien Earths exhibit runs at LHS February 5 through May 8. Admission to LHS is \$8.50/adults; \$6.50/ youth (5-18), full-time students, senior citizens, and the disabled; \$4.50/children 3-4; and free for children two and under.

12:30 - Dr. Margaret Race: *Looking for ET—Bring 'em Back Alive...and Carefully* - perspectives from an expert in the field of planetary protection, analyzing issues of cross-contamination both in space and on Earth.

1:30 Dr. William Borucki, NASA Ames Research Center *"The Search for Habitable Planets Around Other Stars"* Over 100 giant planets orbiting other stars have already been found by ground-based telescopes. Dr. Borucki will describe future space-based missions necessary to find habitable Earth-sized planets, including the upcoming Kepler mission based at NASA Ames Research Center.

2:30 Dr. Emma Bakes - *How does life evolve? An exploration of Titan and Europa as possible alien habitats.*

Water has always been nominated as one of the essential ingredients for life and our own planet Earth yields conclusive proof. However, the main requirements for sources of extraterrestrial life might be thought of as a substance as the triple point (i.e. existing as a solid, a liquid and a gas at the same time) and a source of energy to fuel its organization into single celled organisms. We discuss the types of potential life which may inhabit Europa and Titan and how this may predict the nature of extraterrestrial life in other star systems.

About the speakers:

Dr. Margaret Race, a biologist at the SETI Institute, works closely with NASA in studying scientific, policy and public issues associated with solar system exploration.

Dr. William Borucki is the Principal Investigator of the NASA Kepler mission designed to detect Earth size planets in the habitable zones of stars.

Dr. Emma Bakes, a SETI Institute scientist and NASA Astrobiology Institute (NAI) lead team member, studies the chemical evolution in the atmosphere of Titan.

Astro Events

Jupiter Transits

Below is a listing 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 an '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.

March

Date	Object	Starts	Transits	Ends
Fri 11	GRS	7:30p	9:40p	11:40p
Sun 13	Es	12:45a	2:09a	3:25a
	E	1:45a	3:04a	4:20a
	GRS	1:15a	3:25a	5:30a
	GRS	9:15p	11:17p	1:20a
Mon 14	GRS	na	na	9:10p
Tues 15	GRS	10:51p	1:00a	3:00a
Wed 16	GRS	na	8:43p	10:50p
	Is	10:41p	11:48p	12:51a
	I	11:05p	12:10a	1:13a
Fri 18	GRS	8:20p	10:23p	12:23a
Sun 20	GRS	2:07a	4:10a	na
	Es	3:19a	4:40a	na
	E	4:02a	5:18a	na
Mon 21	GRS	na	7:45p	10:00p
Wed 23	GRS	7:30p	9:30p	11:35p
	Es	na	na	7:47p
Fri 25	Is	na	8:08p	9:13p
	I	na	8:19p	9:23p
	GRS	9:05p	11:10p	1:08a
Sat 26	GRS	na	na	8:55p
Mon 28	GRS	na	8:35p	10:40p
Wed 30	Es	na	8:32p	9:53p
	E	na	8:43p	9:59p
	GRS	8:10p	10:15	12:15a

April

Fri 1	Is	8:56p	10:00p	11:06p
	I	8:59p	10:05p	11:07p
	GRS	9:45p	12:00a	1:55a

Note: All times are now PDT.

Mon 4	GRS	na	10:22p	12:22a
Wed 6	GRS	9:58p	12:04a	2:00a
	E	10:40p	11:57p	1:16a
	Es	10:47p	12:08a	1:28a

First Light: Beginners' Astronomy

by Richard Campbell

Poetry Kit

Last month we explored the Poetry of the stars. Is there a way to create it readily? It might be easier than we think. If you cut out the following words, and rearrange them, a Cosmic poem may arrange itself. I challenge you to take 5 minutes, and see what phrases you can string together, you poet you!

Stargazer	Skies	Multitude	Shadow
Child	Planets	Moon	Prominence
Corona	Northern	Heavens	Bounteous
Above	Southerly	Latitude	Black
Eternal	Night	Gravity	Ascension
Seas	Day	Flare	Heat
Eclipse	Mirror	Stars	Suns
Celestial	Delight	Explorer	Journey
Burn	Time	Explode	Voyage
Chart	Focus	Clear	Lens
Shimmer	Stardust	Birth	Blanket
Pulsate	Wind	Storm	Crater
Mountain	Lava	Atmospheres	Pressure
Rotate	Orbit	Light-years	Landscape
Re-birth	Horizon	Galaxy	Infinite
Traveler	Waves	Mount	Crimson
Golden	Hue	Azure	Ivory
Towering	Constellation	Comet	Epoch
Draw	Finder	Compute	Discover
Valley	Floating	Flying	Meteoric
Home	Transparent	Lander	Mission
Footprint	Universe	Man	Woman
Shapes	Teach	Legacy	Matter
Chemical	Life	Colony	Lover
Inner	Outer	Fire	Alight

Astronomical Insights

by David Feindel

The continued presence of clouds is getting depressing. This is reminiscent of Cleveland-Buffalo winter weather (minus the cold and snow, thankfully). It is certainly not what the Tourist Bureau promises. A total of about 30 minutes of binocular observing spread over two days was it for this month. One can putter over your equipment only so long, getting it ready for Del Valle or H2O observing sessions...

As promised, a few additional comments on the books that I had just started reading last month. *The Moons of Jupiter*, although borderline “coffee-table” book size, is certainly of that genre. Beautiful images from several of the Galilean probes as well as Hubble, with enough text/captions to explain the pictures, why they are significant, and some of the mythology and history. Kristin Leutwyler, the author, provides good writing and almost mesmerizing photos. Reading it proved to be a good remedy for the poor observing weather. The book serves as inspiration for observing Jupiter during its opposition period (now thru mid-August, with opposition on April 3). 🍷🍷

The other book, *The Book Nobody Read*, is a different story. (Bad pun, I know.) I didn't find it particularly interesting, and didn't finish it. The book has several things going for it—Owen Gingerich is a well-recognized historian, a good writer, and he's describing what is arguably one of the 2 or 3 most important scientific books ever written. But the story of who owned what copies, who read it, and who annotated it, wasn't very compelling to me. It rates a so-so on the thumbs up review scale.

One of the things I've gained from a second reading of Suiter's *Star Testing Astronomical Telescopes* is the importance of contrast in the optics. Now given that my current telescope is an SCT, I'm already starting well behind the curve. But are there things that you can do to improve contrast? Clearly, going to a darker sky site helps. Setting up in an area away from direct lights also helps. But does using a long dew shield help? Although I have a dew shield, I tend not to use it as dew usually isn't a big factor in our area, and I'm lazy. Would using it make a noticeable difference in keeping stray light out of the optics? Would using a cape over my head and scope like old-time photographers help? What other tricks/techniques do you use?

Came across a good reference URL while in Dresden looking for a way to kill time between meetings: www.astro.uni-bonn.de/~pbrosche/hist_sci/hs_mus.html. It is a listing of the History of Science: Museums, Memorials, Historical Places and Exhibits.

What's Up *by Debbie Dyke*

All times Pacific Standard Time unless otherwise noted.

March

- 3 Thurs **Last Quarter Moon** 9:36 a.m.
- 5 Sat 1979 Voyager 1 flies past Jupiter and captures first detailed images of it, its rings and moons.
1982 Venera 14 lands on Venus.
- 7 Mon Moon at perigee (225,204 mi.) 8:00 p.m.
1792 John Herschel born.
- 10 Thurs **New Moon** 1:00 a.m.
1977 James Elliot discovers the rings of Uranus.
- 11 Fri Mercury 5° North from the 1.88 day old Moon, low in the West. 7:00 p.m.
- 12 Sat Mercury at greatest Eastern elongation (18°) 10:00 a.m.
- 13 Sun 1781 Wilhelm Herschel discovers Uranus using a 6-inch scope he built himself.
1855 Percival Lowell born.
- 14 Mon Moon 5.5° South of the Pleiades (M45) 9:00 p.m.
1879 Albert Einstein born.
1986 Giotto spacecraft encounters Comet Halley.
- 16 Wed Venus at greatest heliocentric latitude South.
1750 Caroline Herschel born.
1926 Robert Goddard launches first liquid-fuel rocket.
- 17 Thurs **First Quarter Moon** 11:19 a.m.
St. Patrick's Day.
- 18 Fri **Tri-Valley Stargazers general meeting.** 7:30 p.m. at the Unitarian Universalist Church,
1893 N. Vasco Road, Livermore.
Mercury at greatest heliocentric latitude North.
1965 First walk in space by Cosmonaut Alexei Leonov from the Voskhod 2.
- 19 Sat Saturn 7° South of the Moon and just 1° from the Eskimo Nebula (NGC2392) 8:00 p.m.
Mercury stationary 8:00 a.m.
Moon at apogee (251,005 mi.) 3:00 p.m.
- 20 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.
Spring has sprung! The **Vernal Equinox** starts at 4:33 a.m.
- 21 Mon **Tri-Valley Stargazers Board meeting.** 7:00 p.m. at the Round Table Pizza in Livermore.
- 23 Wed 1840 First photo of the Moon taken.
- 25 Fri **Full Moon** 12:58 p.m.
1655 Christiaan Huygens discovers Saturn's largest moon, Titan.
- 26 Sat Jupiter less than 3° North of the Moon 3:00 a.m.
- 28 Mon **First Quarter Moon** 3:48 p.m.
For the next two weeks, look for the Zodiacal Light in the West after evening twilight.
- 29 Tues Mercury in inferior conjunction 8:00 a.m.
1974 Mariner 10 makes first flyby of Mercury and sends pictures home.
- 30 Wed Antares 2.5° South of the Moon in the predawn sky.
Venus in superior conjunction 7:00 p.m.

A Different Angle on Climate Change

by Patrick L. Barry

Look toward the horizon in almost any major city, and you'll clearly see the gray-brown layer of smog and air pollution. Yet when you look straight up, the sky can appear perfectly blue; you might think there's no smog at all!

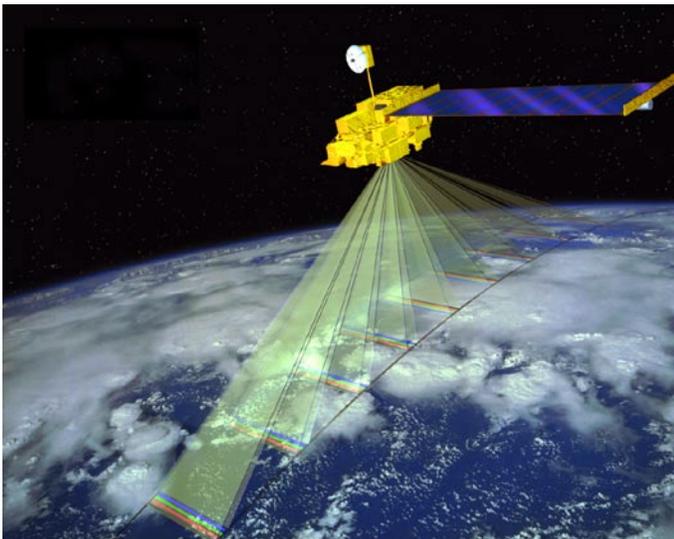
The smog is overhead as well, but it's much harder to see. Why is there such a difference?

It comes down to viewing angles: A vertical line straight up through the atmosphere crosses much less air than a line angled toward the horizon. Less air means less smog, so the sky overhead looks blue. On the other hand, when you look toward the horizon, you're looking through a lot more air. The smog is easier to see.

A one-of-a-kind sensor aboard NASA's Terra satellite capitalizes on this angle effect to get a better view of how clouds and air pollutants scatter and absorb sunlight. By doing so, this sensor—called the Multi-angle Imaging SpectroRadiometer (MISR for short)—is helping scientists fill in a major piece of the climate change puzzle.

Most satellite instruments look only straight down at the Earth. Layers of airborne particles (called aerosols) and smog are harder to see with this vertical view, and clouds often appear only as two-dimensional sheets of white. Clouds and aerosols both can reflect incoming sunlight back out to space, thus cooling the planet. But they can also absorb sunlight and trap heat rising from below, thus helping warm the planet.

What is the net effect? MISR helps scientists figure this out by looking at the atmosphere at several angles—nine



The MISR instrument on the Terra satellite views the atmosphere and Earth's surface from nine different angles.

angles from steeply looking forward (70.5 degrees from vertical), to straight down, to the same steep angle backwards. As the Terra satellite passes over a region, the cameras successively view the region at nine different angles.

From these data, scientists can construct a three-dimensional picture of the cloud cover, revealing much more about cloud dynamics than a flat image alone. They can also see light bouncing off aerosol pollution from nine different directions, thus getting a fuller picture of how aerosols scatter sunlight. And they can even spot thin layers of heat-trapping air pollutants that might go unnoticed by other satellites.

All this information comes just from looking at the atmosphere from a different angle.

For more information, see <http://www-misr.jpl.nasa.gov>. Kids can learn about MISR, see MISR images, and do an online MISR crossword at http://spaceplace.nasa.gov/en/kids/misr_xword/misr_xword2.shtml.

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*

Scope For Sale

Do you have a need for a nice scope set up? TVS got word of one for sale. It's a C-8 (Celestron 8" Schmidt-Cassegrain) on a Losmandy G-11 mount. It comes with:

- Dew shield and heater
- Original Celestron hard case
- Various eye pieces and filters in case (eyepieces include a 7mm and a 2x barlow)
- Telrad
- Moto-focuser

It's all in excellent condition, asking price is \$2,200.

If you're interested, contact Connie or Mike Hoffa at (209) 599-5382. They live out in Ripon, but Mike can meet a buyer in Livermore.



This scope is in need of a new home—will it be yours?

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.
_____ \$25 Basic. You will receive e-mail notification when the PDF version of Prime Focus is available for download off the TVS web site.
_____ \$30 Regular. You will receive a paper version of Prime Focus in the mail.
_____ \$32.95 One year subscription to Sky & Telescope magazine.
_____ \$29 One year subscription to Astronomy magazine.
_____ \$55 Two year subscription to Astronomy magazine.
_____ \$20 Hidden Hill Observatory (H2O) refundable key deposit (key property of TVS).
\$ _____ 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.