

PRIMEFOCUS

Tri-Valley Stargazers

April 2005



Meeting Info:

What

Chinese Astronomy

Who

Naishi Min

When

April 15, 2005

Conversation 7:00 p.m.

Lecture 7:30 p.m.

Where

Unitarian Universalist
Church in Livermore
1893 N. Vasco Road

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April Meeting

Chinese Astronomy
Naishi Min

Our April meeting will be an interesting evening devoted to Chinese astronomy.

Our speaker, Naishi Min, will talk about Chinese astronomy and their traditional constellations and star names. He'll show us some of the pop-up books he's written, and the do-it-yourself astronomical instruments he designed.

Naishi Min was the planetarium director at the Shanghai Education Center in Shanghai, China, for more than 30 years. He's written such astronomical articles as *Mnemonic Rhyme of Right Ascension of Constellations*, *The Method of Speedy Calculation of Sidereal Time*, and *The Method of Time Determination by Examining Stars*. His books include *Introduction to Astronomy*, *Constellation Garden 101*, and *On Design of Constellation Figures*.

He's created over twenty pop-up books, some of which are *Celestial Coordinates and Celestial Globes*, *Fascinating Starry Sky*, and *Mysterious Universe*. In addition, he's also created several star charts, including *Star Charts of Ancient Chinese Constellations* and *Star Charts of Absolute Magnitude and Spectral Classes*.

Not to be outdone, he's also created over 150 do-it-yourself astronomical instruments for explaining, observing and predicting astronomical phenomena, such as Biplanesphere, Vemarsjusa, Pinhole Sundial, Moon Phases Predictor, and Planetarium Projector.

Come to the meeting and learn a whole new way to look at the night sky.



Scale replica of a Chinese armillary sphere.



Replica of a Chinese celestial globe.

News & Notes

Marling Scope Progress Report

The initial part of the scope refurbishment is done. We're now progressing to the second stage of the work which involves upgrading the encoders, replacing the motor coupling, and installing the digital setting circles. More machining work needs to be done and the encoders and coupler need to be purchased. The plan is to have all the work completed by the first of May.

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 May 8th deadline is for the May issue).

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

Money Matters

At the March Board meeting, Treasurer **Gary Steinhour** reported the TVS account balances (as of March 19, 2005):

Checking	\$1,788.22	
CD #1	\$3,457.00	matures 05/17/05
CD #2	\$2,443.34	matures 05/27/05
CD #3	\$1,077.26	matures 04/16/05

School Star Parties

The double header star parties we had planned for March 20th had to be cancelled due to clouds. Both have been rescheduled for Sunday, April 17th.

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. Start time is 7:30 p.m. David Feindel was volunteered 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 (sunset is at 7:48 PDT) on the basketball courts behind the school (use the side drive to get there).

Like last time, for both star parties, clouds cancel.

Project ASTRO

Those of you who attended the March TVS meeting got an introduction to some of the activities that can be done through Project ASTRO. If you're interested in becoming involved with the project, here's your chance.

Project ASTRO is looking for amateur and professional astronomers who would like to work with teachers and students in 3rd-9th grade classrooms. This is a great opportunity to share your love of astronomy with an enthusiastic audience. Volunteers are paired in a one-on-one partnership with a Bay Area teacher at a school near you. Together, you attend a 2-day workshop on August 19-20 where you will learn to do hands-on astronomy activities that involve students in the excitement of scientific discovery.

Project ASTRO is now accepting applications through May 6. For more information visit: www.astrosociety.org/education/astro/bayarea/volunteer.html.

SJAA Auction

Mark your calendar—the infamous SJAA Auction will be on Sunday, April 24 from noon to 3:00. Anyone may buy and sell. 10% commission applied to sellers. www.sjaa.net

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Calendar of Events

April 10, 2005, 7:30 p.m. - 10:00 p.m.

What: *Adult Astronomy Class*

Who: You

Where: Chabot Space & Science Center, Oakland

Cost: \$65 members, \$75 non-members

A six week astronomy course designed especially for adults who are curious about the universe surrounding them and want to learn more! This is a basic, non-mathematical class surveying the general concepts of astronomy. Learn the constellations, how planets, stars, and galaxies are found and the latest theories about the universe. The class runs on Sunday evenings, from April 10 to May 15. Class space is limited. To register call 510-336-7311.

Newsletter header image: Long ago, in galaxies far, far away.

This Hubble Ultra Deep Field (HUDF) image, centered on a tiny part of the sky in Fornax, used 800 exposures for a total exposure time of 11.3 days. It shows galaxies that can't be seen with ground based scopes and were too faint to be seen with the Hubble Deep Field images taken in 1995 and 1998.

There are close to 10,000 galaxies of varying ages visible in the image. The 100 or so smallest, reddest, galaxies may be the most distant known, existing when the universe was just 800 million years old.

Photo by: NASA, ESA, S. Beckwith (STScI) and the HUDF Team

Calendar of Events *continued*

April 12, 2005, 7:30 p.m.

What: *Mars-like Soils in the Atacama Desert and the Limits of Life in Dry Environments*

Who: Dr. Chris McKay (NASA/Ames)

Where: S.F. Jewish Community Center

Cost: \$3

The Atacama Desert of Chile is the driest place on Earth. Recent field research shows that this is the only place on our planet where the Viking missions to Mars in 1976 would have failed to find evidence for life. In the Atacama Desert, we can cross the "dry limit" of microbial life.

This lecture is part of the Morrison Planetarium Benjamin Dean Lecture Series. For more information, call 415-750-7141. Ticket purchase in advance of lecture date recommended.

NEW LECTURE LOCATION: 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.

April 16, 2005, 11:00 a.m. - 5:00 p.m.

What: *Earth Day & Astronomy Day Celebration*

Who: You

Where: Chabot Space & Science Center, Oakland

Cost: Free with General Admission

Celebrate Earth and Astronomy Day at Chabot! Visitors will be invited to learn about tools scientists use to study the Earth's climate; build weather monitoring station instruments; race a solar car; cook with solar energy; examine creatures in a pond; build projects out of recycled materials and view images of Earth from space.

Astronomy activities throughout the day include the use of solar telescopes, daytime viewing of the Sun, the Moon, and Venus, finding your birthday star, telescope making with jello lenses, and learning how telescopes work. Saturday evening we will also hold a drawing for the Meade ETX-90AT and the grand prize, a state-of-the-art Meade 10" LX200GPS SmartMount Telescope.

April 16, 2005, 8:30 p.m.

What: *Einstein's Magic Year*

Who: Professor Lewis Epstein (S.F. City College)

Where: Mt. Tam

Cost: Free

In one year, 100 years ago, Einstein published monumental papers on Special Relativity, the Photoelectric Effect and Brownian Motion, forever changing our view of the physical universe.

Program is held in the Mountain Theater on Mt. Tam. Weather permitting, after the lecture there will be telescope viewing in the Rock Spring parking lot. For more information visit www.mttam.net and the SFAA web site www.sfaa-astronomy.org/sfaa/starparties/index.shtml.

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Lecture Meeting:

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1893 N. Vasco Road, Livermore

Board & Discussion Meetings:

Round Table Pizza
1024 E. Stanley Blvd., Livermore

Web & E-mail

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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*

April 20, 2005, 7:00 p.m.

What: *Estimating the Chances of Life Out There*

Who: Dr. Frank Drake (SETI)

Where: Smithwick Theater, Foothill College

Cost: Free, but it costs \$2.00 to park

In 1960, Dr. Frank Drake performed the first experiment search for radio signals from possible civilizations around other stars. In 1961, he proposed an intriguing method of estimating the number of intelligent life-forms out there that we might communicate with.

In the intervening years, both of Dr. Drake's ideas have become cornerstones of a full-fledged branch of astronomy, commonly called SETI—the Search for Extra-Terrestrial Intelligence. And Dr. Drake helped found the SETI Institute, the main organization involved in the search.

In his talk, Dr. Drake will provide a modern update on estimates for the existence of "E.T." He will draw on new ideas and new observations (including the discovery of surprising planets around other stars), which have helped astronomers refine both the targets where they search for life and the methods they use.

No background in science will be required for this talk, which will interest both fans of astronomy and science fiction.

Dr. Drake is the Director of the Center for the Study of Life in the Universe at the SETI Institute. He served as Professor of Astronomy and Dean of Natural Sciences at the University of California, Santa Cruz, and as Director of the Arecibo Observatory (which has the largest radio dish in the world.) Among his many awards, he was the winner of the prestigious Education Prize of the American Astronomical Society for his many contributions to the public understanding of astronomy. He is the co-author, with Dave Sobel, of "Is Anyone Out There", published by Delacorte Press.

Call the series hot-line at 650-949-7888 for more info.

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

April 28, 2005, 6:30 p.m - 9:00 p.m.

What: *Evolution and the Universe Dialog – Science and the Human Spirit*

Who: Father George Coyne & Dr. Lynn Rothschild

Where: NASA Exploration Center, NASA Ames

Cost: Free

Father George Coyne SJ PhD, Director of the Vatican Observatory, and Dr. Lynn Rothschild PhD, NASA research scientist, will dialogue on science, the human spirit and the beginnings of life at an evening sponsored by the Vatican Observatory Foundation. The event will be

held from 6:30 to 9:00 in the Exploration Center at NASA Ames Research Facility. The presentation will be from 7:00 - 7:45 with a 30 minute question and answer period afterward. Guests will also have the opportunity to view the many exhibits in the facility.

For directions and other information on the Ames facility please visit: www.NASA.gov/centers/ames

The Exploration center is the white tent to your right just before entering the Moffett Field Gate. www1.nasa.gov/centers/ames/home/Directions.html

More on the Exploration Center: www1.nasa.gov/centers/ames/home/home-explorationcenter.html

The Vatican Observatory's website is www.VaticanObservatory.org.

For more information please contact Nancy Knoche at nknoche@earthlink.net, or 602-482-9147.

May 7, 2005, 7:30 p.m.

What: *NCHALADA LXXII*

Who: You

Where: Chabot Space & Science Center

Cost: Free

NCHALADA (Northern California Historical Astronomy Luncheon and Discussion Association) meets several times a year at the Chabot Space and Science Center. They spend a Saturday morning and afternoon discussing two topics related to the history of astronomy. Between the two sessions, they justify the rest of the title by having lunch at a local restaurant. After lunch and before the afternoon session, they have a short business meeting to select the topics and date for the following meeting. The people actually present are considered to be the whole nchalada.

For this month's meeting, the morning portion of the will be on Lunar Domes, with Robert Garfinkle leading the talks. The afternoon session will be on Earth Impact Craters, with Nancy Cox as leader.

May 10, 2005, 7:30 p.m.

What: *Finding Aliens*

Who: Dr. Seth Shostak (SETI Institute)

Where: S.F. Jewish Community Center

Cost: \$3

Efforts to discover other thinking species in the cosmos have not yet succeeded. Novel approaches and new equipment may soon provide proof of such sentient beings. How are researchers planning to broaden reconnaissance for intelligence elsewhere, and what may be the consequences of such a discovery?

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.

April

Wed 6	GRS	9:58p	12:04a	2:00a
	E	10:40p	11:57p	1:16a
	Es	10:47p	12:08a	1:28a
Fri 8	GRS	11:40p	1:42a	3:42a
	I	11:40p	12:45a	1:52a
	Is	11:50p	12:55a	2:00a
Sat 9	GRS	na	9:26p	11:24p
Sun 10	I	na	na	8:18p
	Is	na	na	8:29p
Mon 11	GRS	1:18a	3:17a	5:17a
	G	na	8:10p	9:28p
	Gs	na	9:00p	10:23p
	GRS	9:05p	11:10p	1:05a
Wed 13	GRS	10:45p	12:45a	2:52a
Thurs 14	E	12:54a	2:12a	3:33a
	Es	1:34a	2:40a	4:06a
	GRS	na	8:30p	10:40p
Sat 16	GRS	12:23a	2:26a	4:30a
	I	1:24a	2:29a	3:35a
	Is	1:42a	2:45a	3:54a
	GRS	8:20p	10:15p	12:20a
Sun 17	I	na	8:55p	10:00p
	Is	na	9:13p	10:22p
Mon 18	GRS	9:53p	11:54p	1:52a
	G	10:12p	11:30p	12:39a
	Gs	11:36p	12:54a	2:15a
Wed 20	GRS	11:34p	1:32a	3:35a
Thurs 21	E	3:10a	4:26a	na
	Es	4:00a	5:17a	na
	GRS	na	9:24p	11:30p
Sat 23	GRS	1:10a	3:09a	5:08a
	I	3:09a	4:13a	5:19a
	Is	3:36a	4:36a	na
	GRS	9:06p	11:06p	1:04a
Sun 24	I	9:37p	10:41p	11:45p
	Is	10:05p	11:05p	12:15a
Tues 26	G	1:32a	2:48a	4:05a
	Gs	3:35a	4:50a	na

Thurs 28	GRS	na	10:07p	12:15a
Sat 30	GRS	1:50a	3:54a	na
	GRS	9:49p	11:49p	1:49a

May

Sun 1	GRS	na	na	9:42p
	E	na	na	9:16p
	Es	na	9:10p	10:34p
	I	11:21p	12:24a	1:32a
	Is	11:59p	12:57a	2:08a
Tues 3	GRS	na	9:14p	11:14p
Thurs 5	GRS	9:00p	10:53p	12:55a
Sat 7	GRS	10:32p	12:30a	2:30a
Sun 8	GRS	na	na	10:30p
	E	9:00p	10:17p	11:37p
	Es	10:30p	11:43p	1:09a
Mon 9	I	1:07a	2:12a	3:18a
	Is	1:53a	2:51a	4:03a
Tues 10	I	na	na	9:44p
	Is	na	9:21p	10:32p
	GRS	na	10:03p	12:03a

News & Notes *continued*

Another 2006 Solar Eclipse Trip

The Chico Community Observatory will be leading a tour next year to view a solar eclipse at the border region of Egypt and Libya along the Mediterranean for ease of access, accommodations and sightseeing opportunities in Alexandria and Giza before and after the eclipse. The eclipse totality will last 3 minutes and 58 seconds at the planned location.

Kris Koenig, director of the observatory, and Dr. Claude Plymate of the National Solar Observatory, Tucson, Arizona, will host the tour. The tour will include four and five star accommodations in Cairo and Alexandria prior to heading off to Mersa Matruch and the Libyan border to view the solar eclipse. Sightseeing will include the Egyptian museum, the restored Library of Alexandria, and the Giza plateau. Tour dates are from March 25 to April 2, 2006. Double occupancy price including airfare from JFK, accommodations, air-conditioned coach transportation and some meals is \$2,900.

The organizers plan to keep an emphasis on Egyptian archeoastronomy during the tour and providing assistance in photographing the eclipse. For more information contact Kris Koenig at 530-343-5635, kris@nccao.org.

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What's Up *by Debbie Dyke*

All times Pacific Daylight Time unless otherwise noted.

April

- | | | |
|----|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Fri | Last Quarter Moon 4:50 p.m. PST
1949 Gerald Kuiper discovers Neptune's moon Neried. |
| 2 | Sat | 1845 First photo taken of the sun by Louis Fizeau and Leon Foucault. |
| 3 | Sun | Daylight Savings Begins 2:00 a.m. Spring Forward — move your clocks ahead one hour!
Jupiter at opposition 9:00 a.m. |
| 4 | Mon | Moon at perigee (228,465 mi.) 4:00 a.m. |
| 6 | Wed | 1852 Sir Edward Sabine announces that the 11 year sunspot cycle coincides with the geomagnetic cycle. |
| 8 | Fri | New Moon 1:32 p.m. |
| 11 | Mon | The thin crescent Moon 2.5° South of the Pleiades (M45) 9:00 p.m.
International Astronomy Week (through April 17).
1879 Bernhard Schmidt born |
| 12 | Tues | 1961 Yuri Gagarin becomes the first man to orbit the Earth (orbit lasted 1h 48m)
“Circling the Earth in the orbital spaceship I marvelled at the beauty of our planet.
People of the world! Let us safeguard and enhance this beauty — not destroy it!”
1981 First space shuttle, Columbia, launched. |
| 13 | Wed | Mars 1.2° South of Neptune low in the Southeastern sky 5:00 a.m.
1970 Apollo 13 disaster strikes. |
| 14 | Thurs | Jupiter at aphelion.
1629 Christiaan Huygens born. |
| 15 | Fri | Tri-Valley Stargazers general meeting. 7:30 p.m. at the Unitarian Universalist Church,
1893 N. Vasco Road, Livermore.
Saturn 5° South of the Moon 11:00 p.m. |
| 16 | Sat | First Quarter Moon 7:37 a.m.
Moon at apogee (250,668 mi.) 12:00 p.m.
Astronomy Day. |
| 17 | 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. |
| 18 | Mon | Tri-Valley Stargazers Board meeting. 7:00 p.m. at the Round Table Pizza in Livermore. |
| 20 | Wed | 1972 Apollo 16 lands on the Moon at Descartes. |
| 21 | Thurs | Mercury at aphelion. |
| 22 | Fri | Earth Day.
Lyrid meteors peak 3:00 a.m. |
| 24 | Sun | Full Moon 3:06 a.m. |
| 25 | Mon | 1990 Hubble Space Telescope deployed from shuttle Discovery. |
| 26 | Tues | Mercury at greatest elongation West (27°) 10:00 a.m. |
| 27 | Wed | 4977 B.C. According to Kepler, the Creation occurs on this date. |
| 28 | Thurs | 1900 Jan Oort born. |
| 29 | Fri | Moon at perigee (228,797 mi.) 3:00 a.m. |
| 30 | Sat | Last Quarter Moon 10:24 p.m. |

Utterly Alien

by Dr. Tony Phillips

Look toward the horizon in almost any major city, and there's a planet in our solar system so cold that in winter its nitrogen atmosphere freezes and falls to the ground. The empty sky becomes perfectly clear, jet-black even at noontime. You can see thousands of stars. Not one twinkles.

The brightest star in the sky is the Sun, so distant and tiny you could eclipse it with the head of a pin. There's a moon, too, so *big* you couldn't blot it out with your entire hand. Together, moonlight and sunshine cast a twilight glow across the icy landscape revealing . . . what? Twisted spires, craggy mountains, frozen volcanoes?

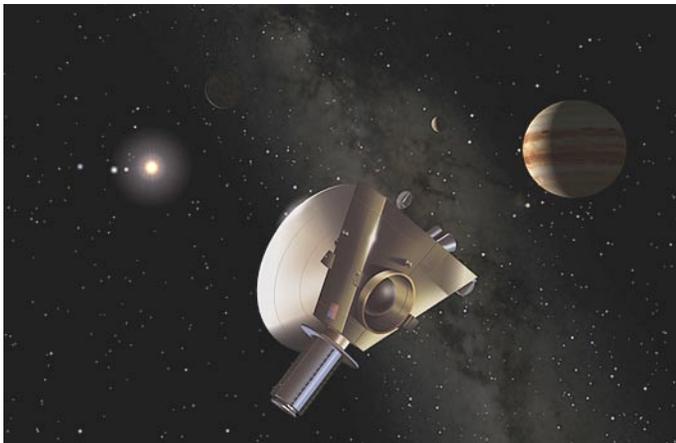
No one knows, because no one has ever been to Pluto.

"Pluto is an alien world," says Alan Stern of the Southwest Research Institute in Colorado. "It's the only planet never visited or photographed by NASA space probes."

That's about to change. A robot-ship called New Horizons is scheduled to blast off for Pluto in January 2006. It's a long journey: More than 6 billion kilometers (about 3.7 billion miles). New Horizons won't arrive until 2015.

"I hope we get there before the atmosphere collapses," says Stern, the mission's principal investigator. Winter is coming, and while it's warm enough now for Pluto's air to float, it won't be for long. Imagine seeing a planet's atmosphere collapse. New Horizons might!

"This is a flyby mission," notes Stern. "Slowing the spacecraft down to *orbit* Pluto would burn more fuel than we can carry." New Horizons will glide past the planet furiously snapping pictures. "Our best images will resolve features the size of a house," Stern says.



New Horizons spacecraft will get a gravity assist from Jupiter on its long journey to Pluto-Charon. Credit: Southwest Research Institute (Dan Durda)/Johns Hopkins University Applied Physics Laboratory (Ken Moscati).

The cameras will also target Pluto's moon, Charon. Charon is more than half the size of Pluto, and the two circle one another only 19,200 kilometers (12,000 miles) apart. (For comparison, the Moon is 382,400 kilometers [239,000 miles] from Earth.) No wonder some astronomers call the pair a "double planet."

Researchers believe that Pluto and Charon were created billions of years ago by some terrific impact, which split a bigger planet into two smaller ones. This idea is supported by the fact that Pluto and Charon spin on their sides like sibling worlds knocked askew.

Yet there are some curious differences: Pluto is bright; Charon is darker. Pluto is covered with frozen nitrogen; Charon by frozen water. Pluto has an atmosphere; Charon might not. "These are things we plan to investigate," says Stern.

Two worlds. So alike, yet so different. So utterly alien. Stay tuned for New Horizons.

Find out more about the New Horizons mission at pluto.jhuapl.edu. Kids can learn amazing facts about Pluto at spaceplace.nasa.gov/en/kids/pluto.

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*

2005 H2O Open House Dates

We have a few dates for our club observing site open house: June 25 and August 27 (both Saturdays, with moonrise around midnight). We may add another date or two in the future



Shameless self-promotion: Your TVS newsletter editor (that's me) receiving the Helen M. Pillans award from the EAS (Eastbay Astronomical Society). Proud parents flank the award recipient.

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.