

# PRIMEFOCUS

Tri-Valley Stargazers

See p. 4 for a major donation announcement!

November 2020



**Meeting Info:**  
**You Can Almost Touch the Stars**

**Who:**  
**Tom Field, RSpec Author, S&T Contributing Editor**

**When:**  
November 20, 2020  
Meeting at 7:30 p.m.  
Lecture at 8:00 p.m.

**Where:**  
Virtual Meeting using: Zoom\*  
[See the April or May issue of PrimeFocus for info on getting connected using Zoom.](#)

## Inside

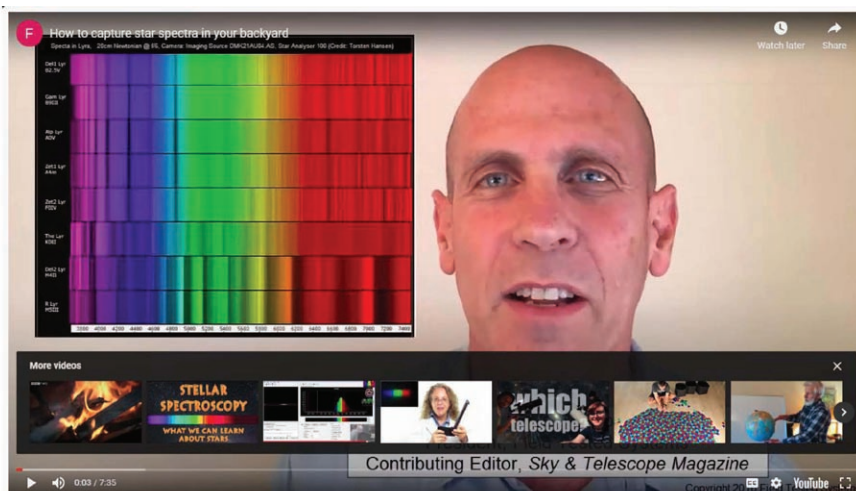
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## November Virtual Meeting Using "Zoom"\*

### You Can Almost Touch the Stars

Tom Field, RSpec Author, S&T Contributing Editor

Even if you wanted to touch a star, they're all impossibly distant. Despite these great distances, astronomers have learned an enormous amount about stars. How? The most common method to study the stars is called spectroscopy, which is the science of analyzing the colorful spectrum produced by a prism-like device.



Until recently, spectroscopy was too expensive and too complicated for all but a handful of amateurs. Today, though, new tools make spectroscopy accessible to almost all of us. You no longer need a PhD, dark skies, long exposures, enormous aperture ... or a big budget! With your current telescope and FITS camera (or a simple web cam or even a DSLR without a telescope) you can now easily study the stars yourself. Wouldn't you like to detect the atmosphere on Neptune or the red shift of a quasar right from your own backyard?!

This talk, with lots of interesting examples, will show you what it's all about and help you understand how spectroscopy is used in research. Even if you are an armchair astronomer, understanding this field will enhance your understanding of the things you read and the night sky. We'll do a live Q&A after Tom's 45-minute presentation.

Tom Field has been a Contributing Editor at Sky & Telescope Magazine for the past 7 years. He is the author of the RSpec software ([www.rspec-astro.com](http://www.rspec-astro.com)) which received the S&T "Hot Product" award in 2011. Tom is a popular speaker who has spoken to hundreds of clubs via the web at many conferences, including NEAF, the NEAF Imaging Conference, PATS, the Winter Star Party, the Advanced Imaging Conference, SCAE, and others. His enthusiastic style is lively and engaging. He promises to open the door for you to this fascinating field.

## News & Notes

### 2020 and 2021 TVS Meeting Dates

Below are the TVS meeting dates. The lecture meetings are on the third Friday of the month, with the Board meetings on the Monday following the lecture meeting.

Lecture Meeting	Board Meeting	Prime Focus Deadline
Nov. 20	Nov. 23	
Dec. 18	Dec. 21	Dec. 04
Jan. 15	Jan. 18	Jan. 01
Feb. 19	Feb. 22	Feb. 05
Mar. 19	Mar. 22	Mar. 05
Apr. 16	Apr. 19	Apr. 02
May 21	May 24	May 07
Jun. 18	Jun. 21	Jun. 04
Jul. 16	Jul. 19	Jul. 02
Aug. 20	Aug. 23	Aug. 06
Sep. 17	Sep. 20	Sep. 03
Oct. 15	Oct. 18	Oct. 01
Nov. 19	Nov. 22	Nov. 05
Dec. 17	Dec. 20	Dec. 03

### TVS Election Nominations

The annual election of club officers will occur during the November club meeting. The nominations are:

President: Ron Kane

Vice President: Eric Duetlgen

Treasurer: John Forrest

Secretary: Ross Gaunt

### Money Matters

As of the last Treasurer's Report on 10/19/20, our club's account balance is \$47,294.52. This includes contributions to the H2O Rebuild fund.

### TVS Welcomes New Members

TVS welcomes new members Norm Fox, Anisha Goyal (S), Robert Minor, Sarup Paul, Yineth Smith, Kevin Whitcomb, and Kris Yost. Please say hello and chat with them during our Zoom meetings. (S)=Student

### Time to Renew Club Membership for 2021

Now is a great time to become part of TVS. Membership is open to anyone with an interest in astronomy. Amateurs and professionals are equally welcome; skilled amateurs comprise the majority of the membership. You do not have to own a telescope in order to be a member.

Those renewing their club membership are encouraged to do so by using the online application before the end of December. Normally our memberships are only good for the calendar year, but anyone joining after October 1st will be given a membership for the remainder of 2020 and all

of 2021. The regular club membership remains a bargain at \$30. Student membership (full-time High School or College student) is only \$10! To become a key holder to H2O, you must be 18 or older. There is a one-time \$20 Key deposit and a \$10 annual access fee.

You can join TVS or renew your membership online at:

<http://www.trivalleystargazers.org/membership.shtml> After filling out the application form you are connected to the PayPal payment form. You do not need to have a PayPal account to pay online, since PayPal will accept credit cards. Everyone is encouraged to use the online application. Alternatively, you can mail in the Membership Application on the last page of this newsletter along with a check to the Tri-Valley Stargazers, P.O. Box 2476, Livermore, CA 94551-2476. Note that TVS will not share your information with anyone. We only use the e-mail address to notify you when the newsletter becomes available.

All members agree to hold the 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.

### H2O and Del Valle Sites Open for Observing

H2O is open for those who want to bring their own scopes to observe. Please use levels 2 and 3 for parking and observing. Level 1 has been cordoned off. Please do not enter the restricted area for your safety. Though this area has been swept numerous times with a magnetic broom, however it is possible that nails remain in the area. We already disposed of a nearly full 5 gallon bucket of nails.

The Del Valle observing site is open. Please notify both the Park Supervisor and the East Bay Parks Police Dispatch office (phone #s given in your User Agreement) at least 24 hours before you plan on using the site.

Please see the August newsletter for the COVID-19 restrictions that the club has adopted to ensure the safety of our members.

### Outreach Star Party Schedule

Cancelled through November.

Contact Eric Duetlgen if you are interested in participating in future events (outreach@trivalleystargazers.org).

### TVS Loaner Scope Program Donation

We want to thank John Horvath for his donation of a Meade 10-inch RCX400 telescope and accessories. John is a former long time member who recently rejoined TVS and then wanted to contribute to help with our loss of the main observatory at H2O. This instrument provides an advanced coma free field of view set on a heavy field base that includes a

## News and Notes (continued)

number of accessories. It's big optically and physically - a two-person requirement for assembly so that the instrument is protected against damage.

John included a hard case for storage and a large-wheeled frame on which to assemble the telescope and then move it outdoors / indoors without disassembly. He also included a Meade Deep Sky Imager (250k pixels) which will likely become an introduction imager for use in the Loan Program.

This is the way to get introduced to larger optics and help you decide what you want to do on acquiring an instrument of your own. Again, our thanks to John!

For telescope loan requests, contact telescopes"at"trivalleys targazers.org

## Calendar of Events

### November 17, 6:00pm

What: OSIRIS-REx: To Asteroid Bennu and Back  
Who: Dr. Carl Hergenrother, U. of Arizona  
Sponsor: NASA Night Sky Network  
Online: <https://www.youtube.com/user/NightSkyNetwork/featured>

OSIRIS-REx is a NASA New Frontiers-class mission to collect a sample of the carbonaceous near-Earth asteroid (101955) Bennu and return it to Earth for analysis. Over the past two years, OSIRIS-REx has studied the surface and near-space environment of Bennu in depth. This webinar will provide an update on the progress of the mission as well as present many of the exciting discoveries made at Bennu.

### November 17, 7:00pm

What: Thanksgiving On Mars: Exploration & Human Missions Beyond Earth Orbit  
Who: Dr. Margaret Race, SETI Institute  
Sponsor: Chabot Space and Science Center  
Online: <https://chabotspace.org/events/events-listing/>

Humankind has always dreamt of traveling to new places and exploring new frontiers. When the Pilgrims' arrived in the New World on wooden sailing ships in the 1600's, they celebrated the first Thanksgiving with Native Americans and began settling into life in their new home.

Over time, the exploration and settlement of our continent continued — initially on foot or by covered wagons, later by Transcontinental Railroad, and more recently by airplanes and jets, each time going further and faster using new technology. Even today, some dream of using rockets to take us to the Moon or Mars, perhaps to establish yet another frontier settlement.

But before we can celebrate Thanksgiving on a new planet, we'll need more than just rocket scientists, engineers and daredevils. Designing human missions to other planets involves taking a broad perspective. Join us for a far-out and forward-looking adventure beyond Earth. Maybe some of you can get involved in the effort ahead. It will take all kinds of experts and lots of teamwork in the coming decades.

To receive a notification when the talk begins, make sure to "Like" the Chabot Space and Science Center Facebook page. Watch on YouTube: <https://youtu.be/b2X7JkA1110>

### November 18, 7:00pm

What: Life on Venus? Or Much Ado About Nothing?

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<b>Officers</b>	<b>Volunteer Positions</b>	<b>Night Sky Network Rep.:</b>	<b>Refreshment Coordinator:</b>
<b>President:</b> Roland Albers <a href="mailto:president@trivalleystargazers.org">president@trivalleystargazers.org</a>	<b>Astronomical League Rep.:</b> Dennis Beckley <a href="mailto:alrep@trivalleystargazers.org">alrep@trivalleystargazers.org</a>	Ross Gaunt <a href="mailto:nnsn@trivalleystargazers.org">nnsn@trivalleystargazers.org</a>	Laurie Grefsheim
<b>Vice-President:</b> Eric Dueltgen <a href="mailto:vice_president@trivalleystargazers.org">vice_president@trivalleystargazers.org</a>	<b>Club Star Party Coordinator:</b> Eric Dueltgen <a href="mailto:coordinator@trivalleystargazers.org">coordinator@trivalleystargazers.org</a>	<b>Observatory Director/Key Master:</b> Chuck Grant <a href="mailto:observatory@trivalleystargazers.org">observatory@trivalleystargazers.org</a>	<b>Webmaster:</b> Hilary Jones <a href="mailto:webmaster@trivalleystargazers.org">webmaster@trivalleystargazers.org</a>
<b>Treasurer:</b> Jenny Siders <a href="mailto:treasurer@trivalleystargazers.org">treasurer@trivalleystargazers.org</a>	<b>Del Valle Coordinator:</b> David Wright <a href="mailto:delvalle@trivalleystargazers.org">delvalle@trivalleystargazers.org</a>	<b>Observing Program Coordinator:</b> Ron Kane <a href="mailto:awards@trivalleystargazers.org">awards@trivalleystargazers.org</a>	<b>Web &amp; E-mail</b> <a href="http://www.trivalleystargazers.org">www.trivalleystargazers.org</a> <a href="mailto:info@trivalleystargazers.org">info@trivalleystargazers.org</a>
<b>Secretary:</b> Ross Gaunt <a href="mailto:secretary@trivalleystargazers.org">secretary@trivalleystargazers.org</a>	<b>Historian:</b> Hilary Jones <a href="mailto:historian@trivalleystargazers.org">historian@trivalleystargazers.org</a>	<b>Outreach Coordinator:</b> Eric Dueltgen <a href="mailto:outreach@trivalleystargazers.org">outreach@trivalleystargazers.org</a>	<b>TVS E-Group</b> To join the TVS e-group just send an e-mail message to the TVS e-mail address ( <a href="mailto:info@trivalleystargazers.org">info@trivalleystargazers.org</a> ) asking to join the group. Make sure you specify the e-mail address you want to use to read and post to the group.
<b>Past President:</b> Rich Combs <a href="mailto:past_president@trivalleystargazers.org">past_president@trivalleystargazers.org</a>	<b>Librarian:</b> Ron Kane <a href="mailto:librarian@trivalleystargazers.org">librarian@trivalleystargazers.org</a>	<b>Potluck Coordinator:</b> OPEN <a href="mailto:potluck@trivalleystargazers.org">potluck@trivalleystargazers.org</a>	
	<b>Loaner Scope Manager:</b> Ron Kane <a href="mailto:telescopes@trivalleystargazers.org">telescopes@trivalleystargazers.org</a>	<b>Program Coordinator:</b> Dan Helmer <a href="mailto:programs@trivalleystargazers.org">programs@trivalleystargazers.org</a>	
	<b>Newsletter Editor:</b> Ken Sperber <a href="mailto:newsletter@trivalleystargazers.org">newsletter@trivalleystargazers.org</a>	<b>Publicity Coordinator:</b> Brian Blau <a href="mailto:publicity@trivalleystargazers.org">publicity@trivalleystargazers.org</a>	

## 20" Planewave, Mathis Mount, and Dome Donation



## Calendar of Events (continued)

Who: Drs. Clara Sousa-Silva and David Greenspoon  
Sponsor: SETI Institute  
Online: REGISTRATION REQUIRED; <https://www.eventbrite.com/e/life-on-venus-or-much-ado-about-nothing-tickets-128043518611>

For decades, we thought of Venus as a completely uninhabitable planet because of the hellish environment on its surface. Yet, several scientists have championed the idea that life could exist in the thick cloud decks that shroud the planet.

Several weeks ago, a team of astronomers reported the detection of phosphine on Venus. If this stinky, toxic, perhaps biogenic gas does exist on Venus as reported, we stand to learn something profound. If clever chemists succeed in identifying a nonbiological source that produces phosphine, we will learn about the limitations of using atmospheric biosignatures to infer life. If they fail, this discovery increases our already high motivation to go to Venus and study its atmosphere in situ with 21st-century instruments. The speakers will discuss whether or not phosphine detected on the planet next door is a signature of alien biology and how we might one day send a space probe to find out.

## Major Donation to TVS!

In the wake of the SCU Lightning Complex Wildfire that destroyed the H2O main observatory there was an outpouring of generosity to TVS from astronomy enthusiasts worldwide. The most immediately noticeable outpouring came in the form of monetary contributions to the TVS Observatory Rebuilding Fund. In excess of \$40,000 dollars was contributed through GoFundMe Charity, PayPal, Benevity matching funds, and personal checks over the course of about 2 months. During that time, about a dozen people and organizations contacted TVS to offer temporary and permanent

equipment donations. In many instances, careful negotiation was required between the parties to assess preconditions on donations, such as the usefulness of equipment for the vision TVS is developing for observatory replacement, whether permission would be granted to TVS to sell equipment to use the money towards our rebuilding effort, and careful consideration of donation worth for providing tax receipts for accepted equipment.

We are pleased to announce a major donation to TVS by David Friedberg, CEO of The Production Board (<https://www.theproductionboard.com/>), of a 20" PlaneWave Corrected Dall-Kirkham (CDK) Telescope, a Mathis MI-750 Fork mount, and a motorized 3.5 meter Observa-DOME! Mr. Friedberg received a degree in astrophysics from UC Berkeley in 2001. This donation was brokered by Prof. Alex Filippenko of UC Berkeley.

The Planewave CDK is a carbon fiber truss tube design that is both lightweight and resistant to thermal expansion. The CDK optical design provides excellent off-axis correction of coma and astigmatism, superior to the Ritchey-Chretien design, and provides a large flat field that is well-suited for large format imaging. The scope weighs approximately 140lbs (<https://planewave.com/product/cdk20-ota/>). The Mathis MI-750 Fork mount is capable of supporting 200lbs of equipment and is thus well-matched to the Planewave. The Right Ascension gear is 15.1 inches in diameter with 450 teeth and the worm gear is stainless steel at 1.2 inches in diameter (<http://www.mathis-instruments.com/Products/Forks.html>). Observa-DOME has over 50 years of experience in the manufacture of observatory domes, serving professional, university, museum, and personal customers, including our very own Chabot Observatory (<https://observa-dome.com/>).

TVS members made 3 visits to the Healdsburg storage facility where the equipment was in long-term storage. On October 24, Chuck Grant and Gert Gottschalk performed an initial reconnaissance to assess the volume of material in order to strategize retrieval of the equipment. Numerous small boxes

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## 20" Planewave, Mathis Mount, and Dome Donation (continued)



Captions: p.4, Left: The Planewave and dome in storage at Healdsburg. Credit: G. Gottschalk. Right: The PlaneWave is securely fastened for transport. Credit: K. Sperber. p.5, Top left: The PlaneWave and Mathis Mount stored under TVS control. Credit: K. Sperber. Top right: The dome in storage in Healdsburg. Credit: G. Gottschalk. Bottom: The dome, packed by (l. to r.) Ken Sperber, Chuck Grant, Hilary Jones, Ross Gaunt, Ron Kane, and Dennis Beckley (not shown), is readied for transport. Credit: Naomi Gaunt

## What's Up By Ken Sperber (adapted from S&T and The Year in Space)

All times are Pacific Standard Time

### November

- 17 Tue The Leonid meteor shower peaks in the early morning
- 18 Wed The Moon, Jupiter, and Saturn form an arc  $10^{\circ}$  long (Dusk)
- 19 Thu The Moon, Jupiter, and Saturn form a triangle (Dusk)
- 21 Sat **First-Quarter Moon (8:45pm)**
- 25 Wed The Moon and Mars are less than  $5^{\circ}$  apart in the south-southwest (Evening)
- 29 Sun The almost Full Moon shines between the Hyades and the Pleiades (Dawn)
- 30 Mon **Full Moon (1:30am)**

### December

- 2 Wed Algol shines at minimum brightness for 2 hours centered on 10:54pm
- 3 Thu The Moon is  $\sim 4^{\circ}$  to the lower-right of Pollux (Evening)
- 5 Sat Algol shines at minimum brightness for 2 hours centered on 7:43pm
- 7 Mon **Last-Quarter Moon (4:37pm)**
- 10 Thu The crescent Moon and Spica rise together, separated by  $\sim 7^{\circ}$  (Morning)
- 12 Sat Use binoculars to see the Moon occult Venus in daylight, with disappearance/reappearance at 1:11pm/2:18pm. The altitude at disappearance is  $21^{\circ}$  with the pair  $25^{\circ}$  west of the Sun. (see Dec. S&T, p. 50)
- 13 Sun The Geminid meteor shower peaks (Evening)
- 14 Mon **New Moon (8:17am)**
- 16 Wed The crescent Moon hangs  $5^{\circ}$  below the close paring of Jupiter and Saturn (Dusk)
- 21 Mon Longest night of the year. The winter solstice begins at 2:02am.
- 21 Mon **First-Quarter Moon (3:41pm)**
- 21 Mon Jupiter and Saturn are less than 6 arc minutes apart in a very rare close conjunction (Dusk)

## Major Donation to TVS! (continued)

of equipment were retrieved. On November 3, Chuck Grant, Gert Gottschalk, and Ken Sperber retrieved the Planewave Optical Tube assembly, the Mathis MI-750 mount, and the portion of the observatory dome rail with the dome rotation motor. On November 7, Chuck Grant, Dennis Beckley, Ross Gaunt, Hilary Jones, Ron Kane, and Ken Sperber, retrieved the remaining dome components, which filled a 15ft. U-Haul truck. Now safely in TVS possession, a complete inventory of parts has been prepared.

To move the H2O rebuilding effort forward, on October 19 the TVS Board commissioned the Observatory Rebuilding Planning Committee (ORPC) whose members are Chuck Grant, Gert Gottschalk, Hilary Jones, and Richard Ozer. Their charter states: "The ORPC is a temporary committee charged with planning new construction and improvements at H2O. New construction plans shall meet or exceed the capabilities of the previous facilities and advance the short and long term site usage plans." Site survey at H2O is ongoing to determine

optimal placement of the Planewave/Mathis Mount/Dome. After site preparation, a concrete building foundation will need to be poured. A pier for the mount will have to be constructed, and walls need to be built on which the dome will be installed. Especially noteworthy will be design and installation of an adequate electrical power system to support this advanced facility.

In the long term, the Planewave scope is envisioned as a dedicated photographic instrument, though in the near term it could also serve as a visual scope. Design options are in progress for an additional large telescope and observatory for visual observing. However, its final configuration will be dependent on the balance of funds remaining after allotting adequate funds for the construction of the Planewave facility and other possible equipment donations.

Ken Sperber, Roland Albers, Chuck Grant, Gert Gottschalk, and Brian Blau contributed to this article.



## The International Space Station: 20 Continuously Crewed Years of Operation

By David Prosper

Did you know that humans have been living in the International Space Station, uninterrupted, for twenty years? Ever since the first crew members docked with the International Space Station (ISS) in November 2000, more than 240 people have visited this outpost, representing 19 countries working together. They have been busy building, upgrading, and maintaining the space station - while simultaneously engaging in cutting-edge scientific research.



Caption: A complete view of the ISS as of October 4, 2018, taken from the Soyuz capsule of the departing crew of Expedition 56 from their Soyuz capsule. This structure was built by materials launched into orbit by 37 United States Space Shuttle missions and 5 Russian Proton and Soyuz rockets, and assembled and maintained by 230 spacewalks, with more to come! Credit: NASA/Roscosmos More info: [bit.ly/issbasics](http://bit.ly/issbasics)

The first modules that would later make up the ISS were launched into orbit in 1998: the Russian Zarya launched via a Proton-K rocket, and the US-built Unity module launched about a week and a half later by the Space Shuttle Endeavour. Subsequent missions added vital elements and modules to the Space Station before it was ready to be inhabited. And at last, on November 2, 2000, Expedition-1 brought the first three permanent crew members to the station in a Russian Soyuz capsule: NASA astronaut William M. Shepherd and Russian cosmonauts Sergei Krikalev and Yuri Gidzenk. Since then, an entire generation has been born into a world where humans continually live and work in space! The pressurized space inside this modern engineering marvel is roughly equal to the volume of a Boeing 747, and is sometimes briefly shared by up to 13 individuals, though the average number of crew members is 6. The unique microgravity environment of the ISS means that long-term studies can be performed on the space station that can't be performed anywhere on

Earth in many fields including space medicine, fluid dynamics, biology, meteorology and environmental monitoring, particle physics, and astrophysics. Of course, one of the biggest and longest experiments on board is research into the effects of microgravity on the human body itself, absolutely vital knowledge for future crewed exploration into deep space.



Caption: The ISS photobombs the Sun in this amazing image taken during the eclipse of August 21, 2017 from Banner, Wyoming. Photo credit: NASA/Joel Kowsky More info: [bit.ly/eclipseiss](http://bit.ly/eclipseiss)

Stargazers have also enjoyed the presence of the ISS as it graces our skies with bright passes overhead. This space station is the largest object humans have yet put into orbit at 357 feet long, almost the length of an American football field (if end zones are included). The large solar arrays – 240 feet wide - reflect quite a bit of sunlight, at times making the ISS brighter than Venus to observers on the ground! Its morning and evening passes can be a treat for stargazers and can even be observed from brightly-lit cities. People all over the world can spot the ISS, and with an orbit only 90 minutes long, sometimes you can spot the station multiple times a night. You can find the next ISS pass near you and receive alerts at sites like NASA's Spot the Station website ([spotthestation.nasa.gov](http://spotthestation.nasa.gov)) and stargazing and satellite tracking apps.

Hundreds of astronauts from all over the world have crewed the International Space Station over the last two decades, and their work has inspired countless people to look up and ponder humanity's presence and future in space. You can find out more about the International Space Station and how living and working on board this amazing outpost has helped prepare us to return to the Moon - and beyond! - at [nasa.gov](http://nasa.gov).

This article is distributed by the NASA Night Sky Network, a coalition of hundreds of astronomy clubs across the US dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](http://nightsky.jpl.nasa.gov) to find local clubs, events, stargazing info and more.



Tri-Valley Stargazers  
P.O. Box 2476  
Livermore, CA 94551  
[www.trivalleystargazers.org](http://www.trivalleystargazers.org)

## Tri-Valley Stargazers Membership Application

### Contact information:

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Street Address: \_\_\_\_\_

City, State, Zip: \_\_\_\_\_

Email Address: \_\_\_\_\_

Status (select one): \_\_\_\_\_ New member \_\_\_\_\_ Renewing or returning member

**Membership category** (select one): Membership term is for one calendar year, January through December.  
Note: NEW/Renewal memberships initiated after October 1, 2020 will be good through 2021!!!

\_\_\_\_\_ Student member (\$10). Must be a full-time high-school or college student.

\_\_\_\_\_ Regular member (\$30).

**Hidden Hill Observatory Access** (optional): Must be 18 or older.

\_\_\_\_\_ One-time key deposit (\$20). This is a refundable deposit for a key to H2O. New key holders must first hear an orientation lecture and sign a usage agreement form before using the observing site.

\_\_\_\_\_ Annual access fee (\$10). You must also be a key holder to access the site.

**Donation** (optional):

\_\_\_\_\_ Tax-deductible contribution to Tri-Valley Stargazers

**Total enclosed:** \$ \_\_\_\_\_

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. TVS will not share information with anyone except as detailed in our Privacy Policy (<http://www.trivalleystargazers.org/privacy.shtml>).

Mail this completed form along with a check to: Tri-Valley Stargazers, P.O. Box 2476, Livermore, CA 94551.