

PRIMEFOCUS

Tri-Valley Stargazers



September 2018



Meeting Info

What: The Basics of Astrophotography: Parts I and II

Who: Ken Sperber and Andy Coutant

When:

September 21, 2018
Doors open at 7:00 p.m.
Meeting at 7:30 p.m.
Lecture at 8:00 p.m.

Where:

Unitarian Universalist Church in Livermore
1893 N. Vasco Road

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September Meeting

The Basics of Astrophotography, Parts I and II: Widefield DSLR Imaging, and Imaging using the Hyperstar System Ken Sperber and Andy Coutant

Part I: Digital cameras have improved dramatically over the last decade, enabling low-noise images with short exposure times, and thus opening up the prospects of astrophotography to anyone who owns a camera and a tripod. Ken Sperber will give an introduction to the basics of widefield astrophotography, including bringing some of the equipment that he uses to capture Milky Way shots, star trails, time-lapse movies, rocket launches, and eclipses. He will discuss the settings that provide a starting point for taking memorable images and cover such topics as obtaining accurate focus, choice of color balance, determining exposure time, and selection of ISO speed-which can improve sensitivity but increase noise.

Part II: With a variety of mount and optical tube assembly (OTA) configurations available to today's astroimager, one of the most gratifying and quickest ways to get nice images is to use a Hyperstar. Hyperstar imaging replaces the secondary mirror of a Schmidt-Cassegrain (SCT) with an optical assembly allowing you to attach a camera directly to the front of an SCT. This configuration, seen in the photo at the right, dramatically reduces the focal length of an OTA and significantly increases the speed. For example: a Celestron EdgeHD 11 with a 2800mm focal length @ f/10 would be reduced to 540mm @ f/2 with a Hyperstar yielding an amazing transformation that makes imaging easy and fun!! Andy Coutant will talk about his journey, experience, and learning using the Hyperstar system. See Andy's image of the Andromeda Galaxy on p.4 of this newsletter.



Ken has had a lifelong interest in astronomy and he has been a TVS member for over 25 years. As seen on his website: <http://www.trivalleystargazers.org/ken/index.html>, he has imaged with webcams, DSLR's, and SBIG CCD cameras.

Andy has been imaging for a little over 4 years starting with Planetary imaging on an iPhone and slowly learning and developing his skills in other disciplines of deep sky imaging. Although having a full-time job, his passion for astroimaging and mentoring has come to dominate much of his free time and money. His images can be seen www.nightsskycollective.com

News & Notes

2018 TVS Meeting Dates

Below are the TVS meeting dates for 2018. The lecture meetings are on the third Friday of the month, with the Board meetings on the Monday following the lecture meeting (except December*).

Lecture Meeting	Board Meeting	Prime Focus Deadline
Sep. 21	Sep. 24	
Oct. 19	Oct. 22	Sep. 28
Nov. 16	Nov. 19	Oct. 26
Dec. 21	Dec. 17*	Nov. 30

Money Matters

As of the last Treasurer's Report on 08/20/18, our club's checking account balance is \$16,241.15.

TVS Membership Continues to Grow

TVS would like to welcome new members Beth Elliott, Katrina Gardner, Marjorie Melendez, Steven Montgomery, Allen Olsen, and Raghava Ravi. Please welcome them at upcoming club meetings. Club membership now stands at 147, the largest in nearly 20 years!

Outreach Star Parties

Friday, 09/14/18: Outreach Party at the Pleasanton Senior Center for the RADD, 7:00pm

Saturday, 09/15/18: Outreach Party at Del Valle Arroyo staging area; 8:15pm

Saturday, 10/6/18: Outreach Solar Party at the Livermore Airport Open House, 10:00am to 4:00pm

Saturday, 10/18/18: Outreach party at Livermore Library, 6:30pm

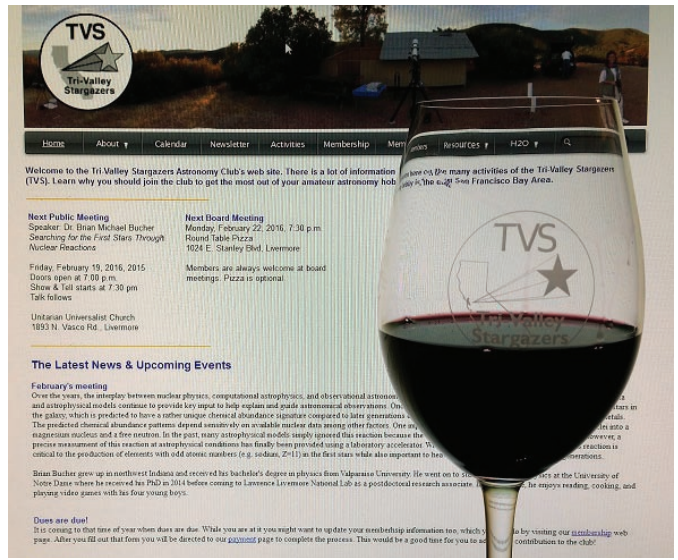
Please contact Eric Dueltgen for further information about the Outreach Star Parties

TVS Club Star Party

Saturday, 10/13/18: Tesla Vintners, 5143 Tesla Road, Livermore, 6:00pm

TVS Crystal Wine Glasses For Sale

TVS is offering elegant crystal wine glasses for sale to club members. You don't have to drink wine to enjoy the beautiful TVS logo-etched stemware. Use them for your favorite beverage, or they can be used as a beautiful container for small plants. They are the perfect gifts for loved ones or friends. Look for them at club meetings, where they will be sold for \$10/each. Don't drink alone, buy two! Support TVS!



Calendar of Events

September 15, 7:30pm

What: Searching for Aliens, Finding Ourselves
Who: Dr. Jill Tarter, Research Chair, SETI Institute
Where: Mt. Tamalpais State Park, Cushing Memorial Amphitheater, more commonly known as the Mountain Theater, Rock Spring parking area
Cost: Free

Are we alone? Humans have been asking this question throughout history. Since the middle of the 20th century, we have had tools that permit us to explore this question scientifically. As we look up and look out, we are forced to see ourselves from a cosmic perspective. This perspective is fundamental to finding a way to sustain life on Earth for the long future.

For more information see: <http://www.friendsofmonttam.org/astronomy/schedule>.

September 28, 6:45pm-10:00pm

What: Adult Night Hike 18+, 4-5 miles
Who: You
Where: Chabot Space and Science Center, 10000 Skyline Blvd., Oakland, CA 94619
Cost: Members \$27, non-Members \$30

The journey begins at sunset from the Center into the beautiful surrounding redwood forest. We'll hike along some of the most popular trails and learn about local history as we uncover evidence from early settlers and will examine local plants as we discuss the ecology of the forest. The evening will be capped off by moon glazing and planet-hunting on our new

Header Image: Omeed Ziari took this image of an incoming thunderstorm at the Golden State Star Party. It's an HDR composite of three exposures to reveal the Milky Way, lightning, and the ranch.

Calendar of Events (continued)

observation deck. Each hiker will receive two complementary glasses of wine or beer along with small bites. A perfect evening for a date night or fun with friends!

For more information see: <https://chabotspace.org/calendar/summer-hike-series-adult-night-hike-18-3/> or for more information, call (510) 336-7373.

October 3, 7:00pm

What: A Sharper Image: Seeing Colliding Galaxies with Adaptive Optics
Who: Dr. Claire Max, Director of the University of California Observatories
Where: Foothill College, Smithwick Theatre, 12345 El Monte Road, Los Altos Hills, CA 94022
Cost: Free, \$3 parking (Credit Cards or \$1 dollar bills)

When light from space enters the Earth's atmosphere, it is distorted and displaced, something our eyes perceive as "twinkling." A new technique, called adaptive optics, can remove a great deal of this distortion, essentially restoring much of the detail we've been robbed off in our view of the star and galaxies. Dr. Max, a world-renowned pioneer in this technique, will show us how modern lasers allow her to do this very precisely. And she'll show us how this is giving us sharper views of such cosmic events as the collision of nearby galaxies. Since such galaxies often have giant black holes in their centers, which can interact, adaptive optics allows us to gather new information about these mysterious objects as well.

For more information see: https://foothill.edu/events/?sr=2&rec_id=5784 or phone 650-949-7888.

October 6, 6:45pm-9:45pm

What: Astro-Imaging Workshop
Who: Glenn N.
Where: Coyote Valley Open Space, 550 Palm Ave., Morgan Hill, CA
Cost: Free

SJAA is proud to sponsor this outdoor workshop where we help those folks who are interested in learning about the mechanics of AstroPhotography and Imaging.

Bring your questions, and/or your Canon or Nikon DSLR to connect to a working rig, and/or your complete astrophotography rig (battery powered).

For more information see: <https://www.meetup.com/SJ-Astronomy/events/243778839/>

October 13, 7:00pm

What: Gravitational Waves and the Glow of Cosmic Gold
Who: Prof. Daniel Kasen, UC Berkeley
Where: Mt. Tamalpais State Park, Cushing Memorial Amphitheater, more commonly known as the Mountain Theater, Rock Spring parking area
Cost: Free

In October 2017, Earthlings detected gravitational waves — ripples in the fabric of space time — from the violent merger of two ultra-dense neutron stars. The signals showed that collision debris self-assembled into heavy elements, such as gold and platinum, providing an explanation for the cosmic origin of these special materials.

For more information see: <http://www.friendsofmonttam.org/astronomy/schedule>.

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<p>Officers</p> <p>President: Rich Combs president@trivalleystargazers.org</p> <p>Vice-President: Eric Dueltgen vice_president@trivalleystargazers.org</p> <p>Treasurer: Roland Albers treasurer@trivalleystargazers.org</p> <p>Secretary: Ron Kane secretary@trivalleystargazers.org</p> <p>Past President: Chuck Grant past_president@trivalleystargazers.org</p>	<p>Volunteer Positions</p> <p>Astronomical League Rep.: Dennis Beckley alrep@trivalleystargazers.org</p> <p>Club Star Party Coordinator: Eric Dueltgen coordinator@trivalleystargazers.org</p> <p>Del Valle Coordinator: David Feindel delvalle@trivalleystargazers.org</p> <p>Historian: Hilary Jones historian@trivalleystargazers.org</p> <p>Internat. Dark-Sky Assoc. Rep.: Aadi Duggal darksky@trivalleystargazers.org</p> <p>Librarian: Ron Kane librarian@trivalleystargazers.org</p> <p>Loaner Scope Manager: Ron Kane telescopes@trivalleystargazers.org</p>	<p>Night Sky Network Rep.: Ross Gaunt nnsn@trivalleystargazers.org</p> <p>Newsletter Editor: Ken Sperber newsletter@trivalleystargazers.org 925-361-7435</p> <p>Observatory Director/Key Master: Chuck Grant observatory@trivalleystargazers.org</p> <p>Outreach Coordinator: Eric Dueltgen outreach@trivalleystargazers.org</p> <p>Potluck Coordinator: Jill Evanko potluck@trivalleystargazers.org</p> <p>Program Coordinator: Lance Simms programs@trivalleystargazers.org</p> <p>Publicity Coordinator: Jim Theberge publicity@trivalleystargazers.org</p>	<p>Refreshment Coordinator: Laurie Grefsheim</p> <p>Webmaster: Hilary Jones webmaster@trivalleystargazers.org</p> <p>Web & E-mail www.trivalleystargazers.org info@trivalleystargazers.org</p> <p>TVS E-Group To join the TVS e-group just send an e-mail message to the TVS e-mail address (info@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.</p>
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Club Member Astrophoto: Andy Coutant



Image Caption: Andy Coutant imaged the M31, the Andromeda Galaxy, from Lassen Volcanic National Park from the Bumpass Hell parking lot. Andy used a Canon T3i, full spectrum modified camera on a Celestron EdgeHD 11 using a HyperStar. The exposure time was 48 minutes. The images were processed in Deep-Sky Stacker and PhotoShop..

October 15, 7:30pm

What: Exploring Our Galactic Neighborhood
Who: Prof. Seth Redfield, Wesleyan University
Where: California Academy of Sciences, 55 Music Concourse Dr., Golden Gate Park, San Francisco, CA
Cost: Advanced ticketing required. Academy members \$12, Seniors \$12, General \$15. Reserve a space online or call 1-877-227-1831.

corner of the Galaxy.

See www.calacademy.org/events/benjamin-dean-astronomy-lectures for lecture and reservation information.

It is important to know what is going on in your neighborhood, and that is also true of the immediate vicinity of our Sun in the Milky Way Galaxy. The Sun, along with our nearest stellar neighbors, is moving through giant clouds of interstellar gas and dust. Indeed, there is an interaction zone where the outward moving winds of stars push against the inward pressure of the surrounding interstellar gas. This interaction can even have important implications for the Earth and other planets. Prof. Redfield will describe what kind of astronomical objects reside in our Galactic neighborhood, how we know they are there, and why it is so important to learn all we can about the astronomical objects that share our small

Club Member Astrophotos: Omeed Ziari

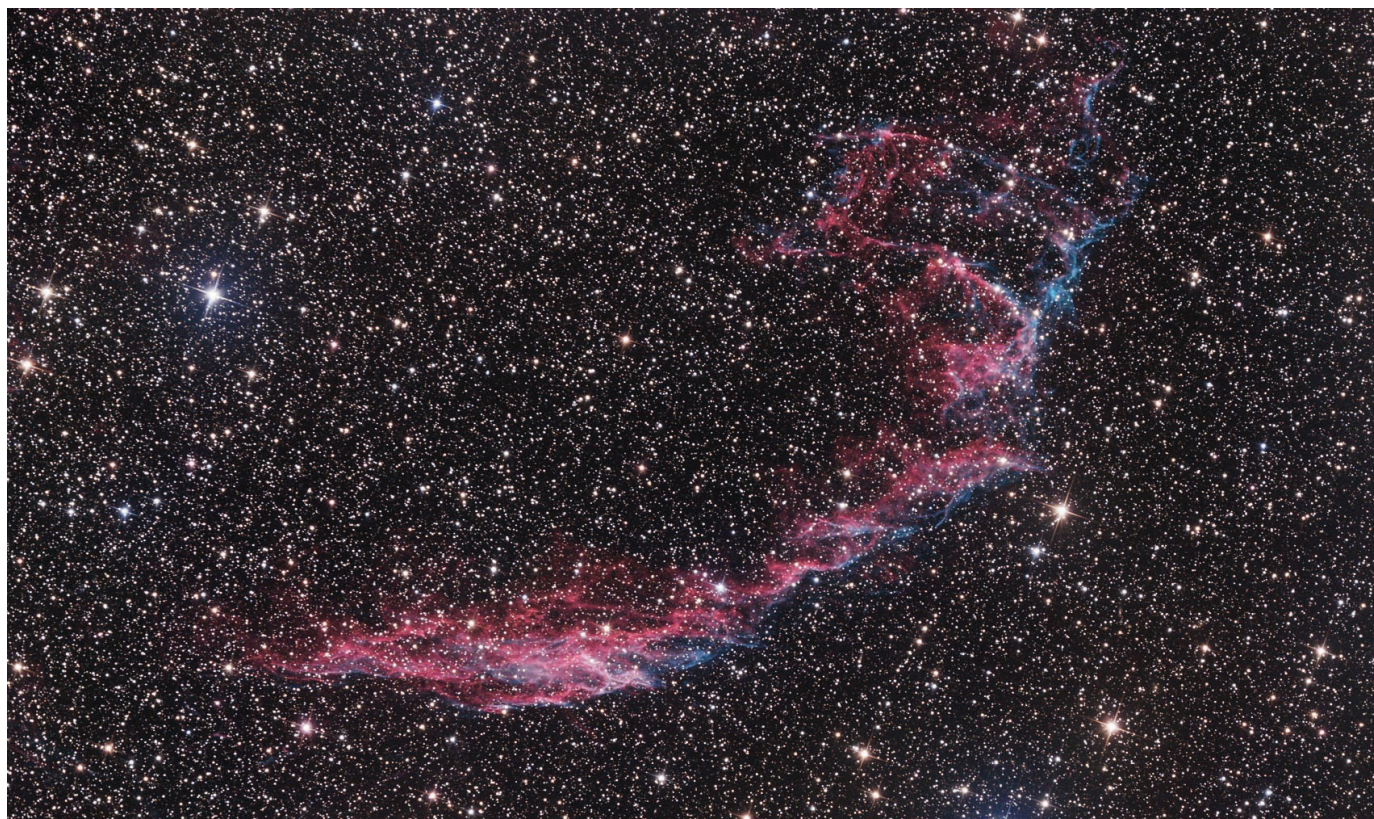


Image Caption: Omeed Ziari attended the Golden State Star Party. For the above images of M8, the Lagoon Nebula (top), and NGC6992/6995, the eastern component of the Veil Nebula (bottom), he used an 8" f/3.9 Orion Newtonian astrograph with a Sky-Watcher Quattro coma corrector on a Sky-Watcher EQ6-R mount. He used a Nikon D5300 camera with H-alpha modification and an Astronomik CLS-CCD filter. The images were processed in PixInsight.

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

All times are Pacific Daylight Time

September

- 13 Thu The crescent Moon, Jupiter, and Alpha Librae form an equilateral triangle with sides about 4° long (Dusk)
- 15 Sat In the southwest the Moon and Antares are flanked by Jupiter and Saturn (Evening)
- 16 Sun **First-Quarter Moon (4:15pm)**
- 16-17 Sun- On Sunday night the Moon is 8° to the right of Saturn, and 4° to its left on Monday night
- 19 Wed The Moon is 4° above Mars
- 24 Mon **Full Moon (7:52pm)**
- 27 Thu Algol at minimum brightness for 2 hours centered on 9:09pm PDT
- 30 Sun The Moon and Aldebaran are separated by about 1°

October

- 2 Tue **Last-Quarter Moon (2:45am)**
- 4 Thu The crescent Moon and M44, the Beehive Cluster, rise in the east-northeast (Early Morning)
- 6 Sat Thin crescent Moon leads Regulus by about 7° (Predawn)
- 8 Mon **New Moon (8:47pm)**
- 11 Thu The crescent Moon is about 3° above Jupiter (Dusk)
- 13- Sat- The Zodiacal light is visible in the east for the next 2 weeks (Dawn)
- 14 Sun Saturn and the waxing crescent Moon are about 2° apart (Dusk)
- 16 Tue **First-Quarter Moon (11:02am)**
- 17 Wed Algol at minimum brightness for 2 hours centered on 10:50pm PDT
- 17- Wed- On the 17th (18th) the Moon is about 6° right (left) of Mars (Evening)
- 20 Sat Algol at minimum brightness for 2 hours centered on 7:39pm PDT
- 20- Sat- The Orionid Meteor shower is visible from the 20-22, peaking on the afternoon of the 21st. It is best viewed in the early morning.
- 24 Wed **Full Moon (9:45am)**
- 26 Fri The Hyades cradles the waning gibbous Moon until sunrise
- 31 Wed **Last-Quarter Moon (9:40am)**

A Trip Through the Milky Way

By Jane Houston Jones and
Jessica Stoller-Conrad

Feeling like you missed out on planning a last vacation of summer? Don't worry—you can still take a late summertime road trip along the Milky Way!



The waning days of summer are upon us, and that means the Sun is setting earlier now. These earlier sunsets reveal a starry sky bisected by the Milky Way. Want to see this view of our home galaxy? Head out to your favorite dark sky getaway or to the darkest city park or urban open space you can find.

While you're out there waiting for a peek at the Milky Way, you'll also have a great view of the planets in our solar system. Keep an eye out right after sunset and you can catch a look at Venus. If you have binoculars or a telescope, you'll see Venus's phase change dramatically during September—from nearly half phase to a larger, thinner crescent.

Jupiter, Saturn and reddish Mars are next in the sky, as they continue their brilliant appearances this month. To see them, look southwest after sunset. If you're in a dark sky and you look above and below Saturn, you can't miss the summer Milky Way spanning the sky from southwest to northeast.

You can also use the summer constellations to help you trace a path across the Milky Way. For example, there's Sagittarius, where stars and some brighter clumps appear as steam from a teapot. Then there is Aquila, where the Eagle's bright Star Altair combined with Cygnus's Deneb and Lyra's Vega mark what's called the "summer triangle." The familiar W-shaped constellation Cassiopeia completes the constellation trail through the summer Milky Way. Binoculars will reveal double stars, clusters and nebulae all along the Milky Way.

Between Sept. 12 and 20, watch the Moon pass from near Venus, above Jupiter, to the left of Saturn and finally above Mars!

This month, both Neptune and brighter Uranus can also be spotted with some help from a telescope. To see them, look in the southeastern sky at 1 a.m. or later. If you stay awake, you can also find Mercury just above Earth's eastern horizon shortly before sunrise. Use the Moon as a guide on Sept. 7 and 8.

Although there are no major meteor showers in September, cometary dust appears in another late summer sight, the morning zodiacal light. Zodiacal light looks like a cone of soft light in the night sky. It is produced when sunlight is scattered by dust in our solar system. Try looking for it in the east right before sunrise on the moonless mornings of Sept. 8 through Sept 23.

You can catch up on all of NASA's current—and future—missions at www.nasa.gov



Image Caption: This illustration shows how the summer constellations trace a path across the Milky Way. To get the best views, head out to the darkest sky you can find. Credit: NASA/JPL-Caltech



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

Student member (\$5). Must be a full-time high-school or college student.

Regular member (\$30).

Patron member (\$100). Patron membership grants use of the club's 17.5" reflector at H2O. You must be a member in good standing for at least one year, hold a key to H2O, and receive board approval.

Hidden Hill Observatory Access (optional):

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 (www.trivalleystargazers.org/privacy.shtml).

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