

PRIMEFOCUS

Tri-Valley Stargazers



September 2017



Meeting Info

What:

Solar Eclipse Recap

Who:

TVS Members

When:

September 15, 2017
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

Solar Eclipse Recap

TVS members travelled far and wide to see the August 21, 2017 total solar eclipse. Come hear the tales of their journeys, and see the images that they took pains to acquire and process. The excitement of the event is also captured in their comments:

About a 10 minute window opened up just in time for totality. Western Missouri-Mark Lee

We had some thin fog that obscured the outer corona, but we still got a good view. Oregon coast-Eric Dueltgen

The temperature started dropping about 1/2 hour before totality, and Venus was already visible. At totality a cheer went up from the crowd. I was surprised by the brilliance and extent of the Corona. Totality was the most amazing thing I've ever seen. Idaho Falls, ID-John Mowchenko

The corona was much brighter than I remember from 2006. Madras, OR-Chuck Grant

The naked eye prominences and diamond ring were beautiful. Venus popped out near the Zenith and we saw Jupiter off to the west. It was also quite exciting to see the Moon's shadow race across the sky towards us! Mitchell, OR-Bill Drelling

Compared to the 2006 total solar eclipse I watched from Turkey, this eclipse had a larger corona, with more detail, including fine thread-like structures, and red prominences visible to the unaided eye. Douglas, WY-Ken Sperber

On hosting eclipse viewing at the Pleasanton Library, Don Dossa reported that several hundred people got in line for the telescope. We could not see the end of the line. It looked like a line at Disneyland. Pleasanton, CA-Don Dossa

I just set up my 90mm equatorial-tracking Mak with a good solar filter I had in downtown Tracy. This drew a bit of a crowd from nearby businesses, and everyone enjoyed the view, even though we only had a partial eclipse. Tracy, CA-Rich Newell

This was my wife and my first total eclipse and the only way it could have been better was to have lasted longer. Jackson Hole, WY-Dennis Beckley

The best astronomical thing I have seen in my life. We had about 2 minutes and 7 seconds, which went like 10 seconds. Unity, OR-Sriram Veeraraghavan

I wanted to hit the replay button on my telescope, but Celestron seems to have left that feature off. Madras, OR-Ross Gaunt

Is anyone else convinced that we did not get the full 2+ minutes of totality? When the second diamond ring struck, I keep shouting, "NO, NO, NO," because I just knew for sure that totality was cut short and I absolutely needed to contact Cosmic Customer Service to let them know that a mistake had been made and that the situation needed to be rectified immediately! Madras, OR-Maggie Halberg

My wife and my first total eclipse, she's talking about 2024 and maybe the Pacific cruise in a couple years... Great experience. Midway between Prineville and Madras-Ron Kane

The enormous corona set against the dark blue sky was simply breathtaking. And now I'm just counting the days until 2024! Giant City State Park, IL-Lance Simms

News & Notes

2017 TVS Meeting Dates

The following lists the TVS meeting dates for 2017. 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
Sep. 15	Sep. 18	
Oct. 20	Oct. 23	Sep. 29
Nov. 17	Nov. 20	Oct. 27
Dec. 15	Dec. 18	Nov. 24

Money Matters

As of the last Treasurer's Report on 7/24/17, our club's checking account balance is \$14,381.26.

Outreach Star Parties: Help Needed

September 21: John Green Elementary School, Dublin; set-up 6:45pm

September 22: Del Valle parking lot at the end of Arroyo Road, Livermore; set-up 6:15pm

September 27: Frederiksen Elementary School, Dublin; set-up 6:45pm

September 28: Livermore Library; set-up 6:30pm

September 29: RADD at Pleasanton Senior Center; set-up 6:30pm

October 7: Solar observing, Livermore Airport; set-up TBD

Please contact Eric Dueltgen for more information.

Club Star Parties: 2017 Summer/Autumn

The following club star party has been approved by the TVS Board:

October 21: Tesla Winery star party (Orionids Meteors)

Calendar of Events

September 11, 7:30pm

What: Farewell to Saturn: Cassini's Spectacular End-of-Mission Science
Who: Dr. Matthew Tiscareno, SETI Institute
Where: California Academy of Science, 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.

Cassini's 13 years at Saturn have made it the most spectacularly successful interplanetary mission in the history of NASA. In

its final 10 months, Cassini has transformed itself into a whole new mission with its Grand Finale, including 20 close flybys off the outer edge of Saturn's rings and 22 passes between the rings and the cloud-tops of the planet. With detailed new data, Saturn's rings, its clouds, its small inner moons, and more are coming into sharper focus than ever before. In this lecture, only four days before Cassini's final plunge into the depths of Saturn, Cassini rings scientist Matthew Tiscareno will review the rich harvest of the Cassini mission.

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

September 23, 8:00pm

What: Life in the Goldilocks Zone
Who: Dr. Natalie Batalha, NASA Ames Research Center
Where: Mt. Tamalpais State Park, Cushing Memorial Amphitheater, more commonly known as the Mountain Theater, Rock Spring parking area
Cost: Free

Discoveries by NASA's Kepler Mission suggest there are billions of potentially habitable worlds in the Milky Way galaxy. What has the study of planets within and beyond the Solar System taught us about our own planet Earth? And what's next in the search for life beyond the Solar System?

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

October 2, 7:30pm

What: Solar Spicules: Dynamic Jets that Power the Sun's Atmosphere
Who: Dr. Juan Martinez-Sykora, Lockheed-Martin Solar and Astrophysics Laboratory & Bay Area Environmental Research Institute
Where: California Academy of Science, 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.

At any moment, the Sun's lower atmosphere is permeated by tens of millions of colossal jets known as spicules, measuring up to 8,000 kilometers (5,000 miles) in length and propelling plasma into the upper atmosphere at speeds on the order of 100 kilometers (60 miles) per second.

Despite being observed for a century, their origin has been poorly understood. For the first time, thanks to a combination of computer simulations and observations by ground-based telescopes and spaceborne observatories, some of the mysteries of spicules are being peeled away.

See www.calacademy.org/events/benjamin-dean-astronomy-lectures

Header Image: Some of the TVS members at Solar City, Madras, OR for the August 21, 2017 solar eclipse. From left to right: Chuck, Joy, Naomi, Ross, Roland, and Jill. Also starring: Chuck's triple camera system. Image Credit: Ross Gaunt

Calendar of Events (continued)

my-lectures for lecture and reservation information.

October 28, 7:30pm

What: Astrophotography for Everyone
Who: Jay GaBany, President & CEO, Advanced Imaging Conference
Where: Mt. Tamalpais State Park, Cushing Memorial Amphitheater, more commonly known as the Mountain Theater, Rock Spring parking area
Cost: Free

Advances in recent decades have allowed amateur astronomers to produce deep space and planetary pictures that rival those taken by professional observatories. This presentation will provide an overview of off-the-shelf instruments and methods anyone, with perseverance and patience, can use to take amazing astronomical images.

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

October 28

What: Starlight Gala Transformation
Who: You
Where: Chabot Space and Science Center, 10000 Skyline Blvd., Oakland, CA 94619
Cost: \$500/seat

Join us at our largest party of the year to support science education!

On October 28th, we will transform the Center for one night of feasting, dancing and fun - all to raise funds for Chabot's innovative, hands on programs that reach more than 50,000 children annually and inspire lifelong learning for more than

150,000 visitors across our community.

Starlight Gala Premiere Ticket: \$500 - includes:

Cocktail reception, elegant dinner and exciting live auction, after party dancing at the Chabot Silent Disco. How will you TRANSFORM for the year's best Halloween party?

Sponsorships are available and include VIP benefits. To learn more please contact Sarah Schafer at development@chabot.space.org or 510.336.7305.

Tickets: <https://14884.blackbaudhosting.com/14884/Starlight-Gala>

TVS Outreach Appreciated

John Mitchell, the Children's Librarian and Programming Coordinator of the Pleasanton Library, wrote TVS President Rich Combs stating "I'm writing to thank the Tri-Valley Stargazers – and Don Dossa, his son, and wife in particular – for your support of our recent eclipse-watching event. As you may have heard we had at least 600 people(!) show up, wildly exceeding our expectations. But Don and his family were very gracious, unflappable co-hosts. Their solar telescope was a big hit with adults and children. Their knowledge and the use of their telescope were a significant enhancement to our patrons' experience. You may see a few new members as a result!"

Ms. Sharkey of the Kingston Schools also wrote Rich, stating "I just wanted to send a quick thank you for the TVS web site-my student Tyler who I've been tutoring this summer found it last week when he was working on an astronomy web quest..."

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Officers

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info@trivalleystargazers.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 (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.

Solar Eclipse: Member Images



Image Caption: Images of the solar eclipse of August 21, 2017 from Midvale, ID using a modified Canon 6D with a 400mm f/5.6 lens and a 1.4x multiplier. at ISO-5000. The diamond ring exposure was 1/1000 sec, and the corona exposure was 1/250 sec. Image Credit: Alan Gorski

He thought we should tell you that we found lots of information and learned a lot so thank you-he thought it was very cool and now he wants to start his own stargazing club:) We also wanted to make a suggestion-Tyler found another useful astronomy resource during his research that he thought you folks might be interested in:

“Home Science: Backyard Astronomy”- <http://www.homeadvisor.com/r/?p=25176&preview=true>

This has lots of great astronomy and space information for beginners, and Tyler thought it would make a helpful addition to the other resource links you have on this page <http://www.trivalleystargazers.org/links.shtml> Would it be possible to add it? He was really excited to share it so I think he would be proud to see his suggestion was a good one:) thanks for your time Rich and have a good day!

It was great fun and quite spectacular. This was my 5th total solar eclipse. My last total solar eclipse was in 1995 (22 years ago) on an eclipse cruise somewhere in the South China Sea between South Vietnam and Borneo.

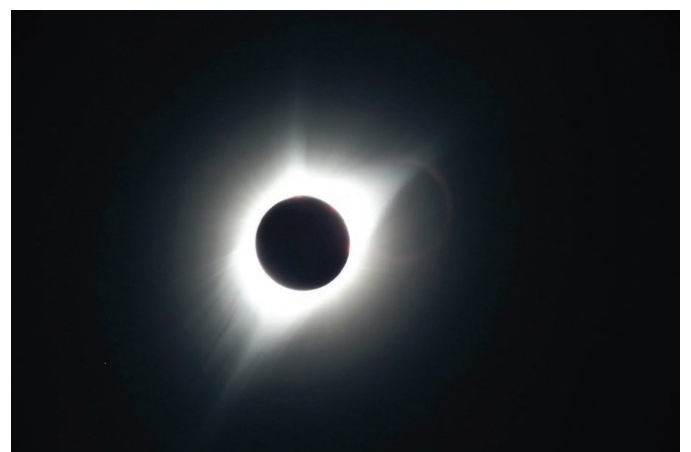


Image Caption: Images of the solar eclipse of August 21, 2017 using a modified Canon 6D with a 400mm f/5.6 lens and a 1.4x multiplier. at ISO-5000. These images were taken using a polarizing filter set to 0° (top), and 135° (bottom). The extent of the corona is accentuated with the polarizer set to 135° . Image Credit: Alan Gorski

Solar Eclipse Travels By Alan Gorski

My family and I viewed the solar eclipse from a private airport in Midvale, ID (population 163 and boasts of an elected Mayor). Perfect weather, no clouds, deep blue skies and no forest fire smoke. I used a Canon 400mm f/5.6 telephoto with a 1.4x. multiplier at ISO 5000, using a modified Canon 6D full frame DSLR. I used a linear polarizer (which added two f/ stops) to duplicate my failed experiment in 1980 of the outer corona from Kenya, Africa. This time I it worked. Nevertheless one of my 1980 photos of the 1980 eclipse taken through a Celestron 8 was published in Sky & Telescope. Oh what a difference technology makes. My 400 mm telephoto shots today far surpass the Celestron 8 photos on Ektachrome 400 back then.

If you look real close, Regulus in Leo is in the lower-left quadrant of the polarized images.

Solar Eclipse: Member Images



Image Caption: Image of the total solar eclipse of August 21, 2017 taken from Solar Town in Madras, OR with a Stellarvue 80mm f/6 refractor and a modified Canon T5i camera set to ISO-100 and 1/1600s exposure. Image Credit: Roland Albers



Image Caption: Roland, Joy, Roland's wife Jill, and Ross observing the partial phase of the August 21, 2017 total solar eclipse from Solar Town in Madras, OR. Image Credit: Roland Albers

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

All times are Pacific Daylight Time

September

- 15 Fri **Cassini's 13-year mission at Saturn comes to an end as it plunges into Saturn!!! This is necessary to prevent contamination of Enceladus or Titan, two worlds that have pre-biotic chemistry**

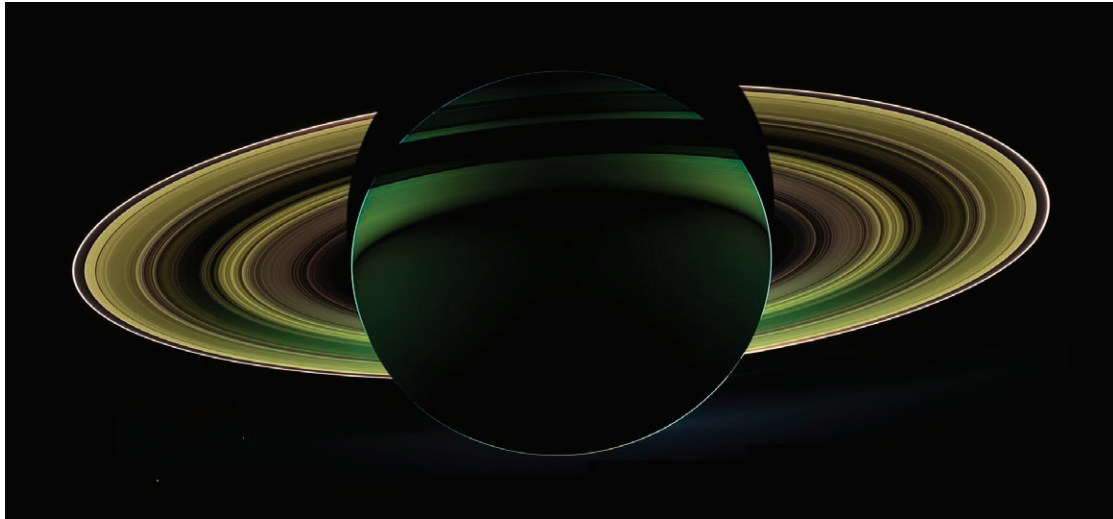


Image Caption: Taken from within the shadow of Saturn, Cassini took this backlit image of Saturn and its rings on October 17, 2012. On the left side of the planet, below the rings, is Enceladus. Tethys is located further below and to the left. Image Credit: NASA/JPL-Caltech/Space Science Institute; see: <https://www.jpl.nasa.gov/spaceimages/details.php?id=pia14934>

- 16 Sat Regulus 4.5 degrees below Venus, with Mercury and Mars 7 degrees below Regulus (Dawn)
17-30 Sun- The Zodiacal Light is visible in the east 120 to 80 minutes before sunrise
18 Mon Venus, Regulus, thin crescent Moon, Mars, and Mercury form a nearly vertical line 12 degrees long (Dawn)
19 Tue **New Moon (10:30pm)**
19 Tue The crescent Moon is about 5 degrees below Venus in the east (Dawn)
22 Fri Thin crescent Moon about 7 degrees to the upper-left of Jupiter in the west-southwest (Dusk)
26 Tue Saturn about 3 degrees below the crescent Moon in the southwest (Evening)
27 Wed **First-Quarter Moon (7:53pm)**

October

- 5 Thu Venus and Mars form a close pair in the east (Dawn)
5 Thu **Full Moon (11:40am)**
8-9 Sun- The Moon shines with the Hyades and Aldebaran (late Evening)
12 Thu **Last-Quarter Moon (5:25am)**
13 Fri Algol at minimum brightness for 2 hours centered on 1:36am
15 Sun The Moon occults Regulus. Only the reappearance is visible from the Bay area at ~3:11am
15-30 Sun- The Zodiacal Light is visible in the east 120 to 80 minutes before sunrise
16 Mon Algol at minimum brightness for 2 hours centered on 1:25am
17 Tue Very thin crescent Moon hangs above Venus and left or lower-left of faint Mars in the east (Dawn)
19 Thu **New Moon (12:12pm)**
20-22 Fri- Modest Orionid meteor shower; best before dawn

Solar Eclipse: Member Images and DSCOVR



Image Caption: Images of the solar eclipse of August 21, 2017 taken from Unity, OR using a Nikon D90 through a Celestron 80mm refractor (600 mm focal length, effective focal length 960mm due to APS-C size sensor). The image on the right is a composite of 16 images of different exposure durations to show the extent of the corona. Image Credit: Sriram Veeraraghavan



Image Caption: Images of the solar eclipse of August 21, 2017 taken from Unity, OR using a Canon Rebel XTI through a 10-inch Meade SCT. Image Credit: Charles J. Fox. Jr.



Image Caption: The Moon's shadow over the Pacific Northwest during the solar eclipse of August 21, 2017, as seen by the NOAA's Deep Space Climate Observatory (DSCOVR). Image Credit: NASA EPIC Team. See: <https://www.nasa.gov/image-feature/goddard/2017/nasas-epic-view-of-2017-eclipse-across-america>



Image Caption: Composite of images of the solar eclipse of August 21, 2017 taken from Douglas, WY using a Canon 6D at ISO-100 with a Tamron zoom lens set to 24mm, f/5.6. Image Credit: Ken Sperber



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

Tri-Valley Stargazers Membership Application

(or apply for membership online: www.trivalleystargazers.org/membership.shtml)

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.

Magazine Subscriptions (optional): Discounted subscriptions are available only to new subscribers. All subsequent renewals are handled directly with the magazine publishers.

One-year subscription to Sky & Telescope magazine (\$32.95).

One-year subscription to Astronomy magazine (\$34).

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 other than other club members and the Astronomical League without your express permission.

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