PrimeFocus

January 2025

WHEN:

January 17, 2025
Doors open at 7:00pm
Meeting at 7:30pm
Lecture at 8:00pm

WHERE:

Unitarian Church
1893 North Vasco Rd.
Livermore, CA 94551
and via Zoom

TVS QR CODE

INSIDE THIS ISSUE:

JAMES LICK AND THE HISTROY OF THE LICK OBSERVATORY

BY DR JON REES

In this talk Dr. Rees will discuss the life of James Lick, and how he came to establish the world's first permanent mountaintop observatory, atop Mount Hamilton. He will also cover some of the later history of Lick Observatory, and the observatory's on-going contributions to cutting-edge research and technology.

Dr Jon Rees is a staff astronomer at Lick Observatory. He received a Ph.D. in Physics from the University of Exeter in 2016, focused on observations of young star clusters. He completed a joint postdoc position at the University of Arizona/UC San Diego, followed by a stint as observatory manager at New Mexico State University before joining Lick. His research interests cover the evolution of young stars, low-mass stars in globular clusters, and brown dwarfs.

1902, Photochrom print of Lick Observatory, San Jose, California.
https://commons.wikimedia.org/wiki/File:Lick_Observatory,_Mt._Hamilton,_California,_1902.jpg

NEWS AND NOTES

2025 Meeting Dates

Club Meeting	Board Meeting	PrimeFocus Deadline
Jan. 17	Jan. 20	
Feb. 21	Feb. 24	Feb. 8
Mar. 21	Mar. 24	Mar. 8

Money Matters

As of the last Treasurer's Report on 12/23/24, our club's account balance is $49,759.89, this includes $13,104.47 in the H2O Rebuild fund.

TVS Welcomes New Members

TVS welcomes new member Craig Hancock. Please say hello and chat with him during our meetings.

2025 Club Star Party Schedule

Save the dates for the 2025 Club Star Parties.

Del Valle star parties are also public outreach events. They are jointly hosted with the EBRPD and held at the Arroyo Staging Area. The public is invited for the first 1.5-2 hours, while club members can stay the remainder of the night. No parties currently planned.

Tesla Vintners star parties are open to only club members and their guests. These star parties end at midnight, but participants can leave earlier, should they wish. No parties currently planned.

H2O Open House star parties are open to only club members and their guests. The open house ends at midnight, and all participants are encouraged to stay the duration. The drive to H2O takes about 1 hour, and the caravan leaves promptly from the corner of Mines and Tesla Rds. No gas stations are available on the route, so be prepared. Admission is $3/car-bring exact change. H2O is a primitive site with two porta-potties. Bring water, food, and warm clothing, as needed. Red flashlights are to be used so observers can preserve their night vision. No open house star parties currently planned.

Jan 23: School star party at Leo Croce Elementary, 5650 Scenic Avenue, Livermore. 5:00pm to 8:00pm.

Jan 30: School star party in conjunction with Family Science Night, St. Michael School, 345 Church Street, Livermore. Set up 5:30pm, observing 6:30pm.

Feb 1: TENATIVE Public star party at Sunol Regional Wilderness. Sunol Regional Wilderness, 1895 Geary Road, Sunol. 6:00pm - 9:00pm

CALENDAR OF EVENTS

January 17,18, 25, 31,
February 1, 7, 8, 14, 15, 7:30-10:30 PM

What Free Telescope Viewing
Who Chabot Staff
Where Chabot Space and Science Center, 10000 Skyline Blvd. Oakland, CA 94619
Cost Free

Join Chabot astronomers on the Observatory Deck for a free telescope viewing! Weather permitting, this is a chance to explore stars, planets and more through Chabot's historic telescopes. Chabot's three large historic telescopes offer a unique way to experience the awe and wonder of the Universe. Three observatory domes house the Center's 8-inch (Leah, 1883) and 20-inch (Rachel, 1916) refracting telescopes, along with a 36-inch reflecting telescope (Nellie, 2003).

Are the skies clear for viewing tonight? Viewing can be impacted by rain, clouds, humidity and other weather conditions. Conditions can be unique to Chabot because of its unique location in Joaquin Miller Park. Before your visit, check out the Weather Station to see the current conditions at Chabot.

For more information, see:
https://chabotspace.org/programs/free-telescope-viewings/

January 29, 7:00 PM

What NASA's VIPER Mission: Real-time Collaborative Science Operations at the South Pole of the Moon
Who Silicon Valley Astronomy Lecture Series
Where Foothill College is just off the El Monte Road exit from Freeway 280 in Los Altos.
For directions and parking information, see: https://foothill.edu/parking/
For a campus map, to find the Smithwick Theater (Bldg. 1000), see:
https://foothill.edu/map/
Cost Free

NASA's VIPER lunar-rover is being planned as humanity's first resource mapping mission on another celestial body. The Volatiles Investigating Polar Exploration Rover (VIPER) will go to the South Pole of the Moon to get a close-up view of the locations that can sustain water ice – ice that could eventually be harvested to support human exploration on the Moon, on Mars — and beyond. Dim-to-dark lighting at the South Pole and variable communication links to the Earth will require the VIPER team to steer the solar-powered rover away from advancing shadows while maintaining critical communications with Earth so that the team can optimize science return from the Moon. For the first time in

NASA's history, the science team will be fully integrated into the mission operations team and will provide near real-time input on where to explore on the Moon. As the Deputy Project Scientist and Science Operations Lead for VIPER, Dr. Lim will share the first-of-its-kind design of the mission's Science Center and the plans for lunar exploration. VIPER science operations will set a foundation for NASA that will affect future missions to the Moon and Mars.

Dr. Darlene Lim is a research scientist at the NASA Ames Research Center. She has conducted field research around the world, on land and underwater, and has served as the Principal Investigator of the SUBSEA, BASALT and Pavilion Lake research programs, the Deputy PI for the FINESSE program, and as a Co-I on numerous other NASA research and analog programs. She was the Co-Chair from 2009-2016 of a key group analyzing our country's Mars Exploration Program Goals, and a member of the NOAA Ocean Exploration Advisory Board from 2014-2021.

OFFICERS AND VOLUNTEER POSITIONS

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Refreshment Coordinator
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Web and Email
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info@trivalleystargazers.org

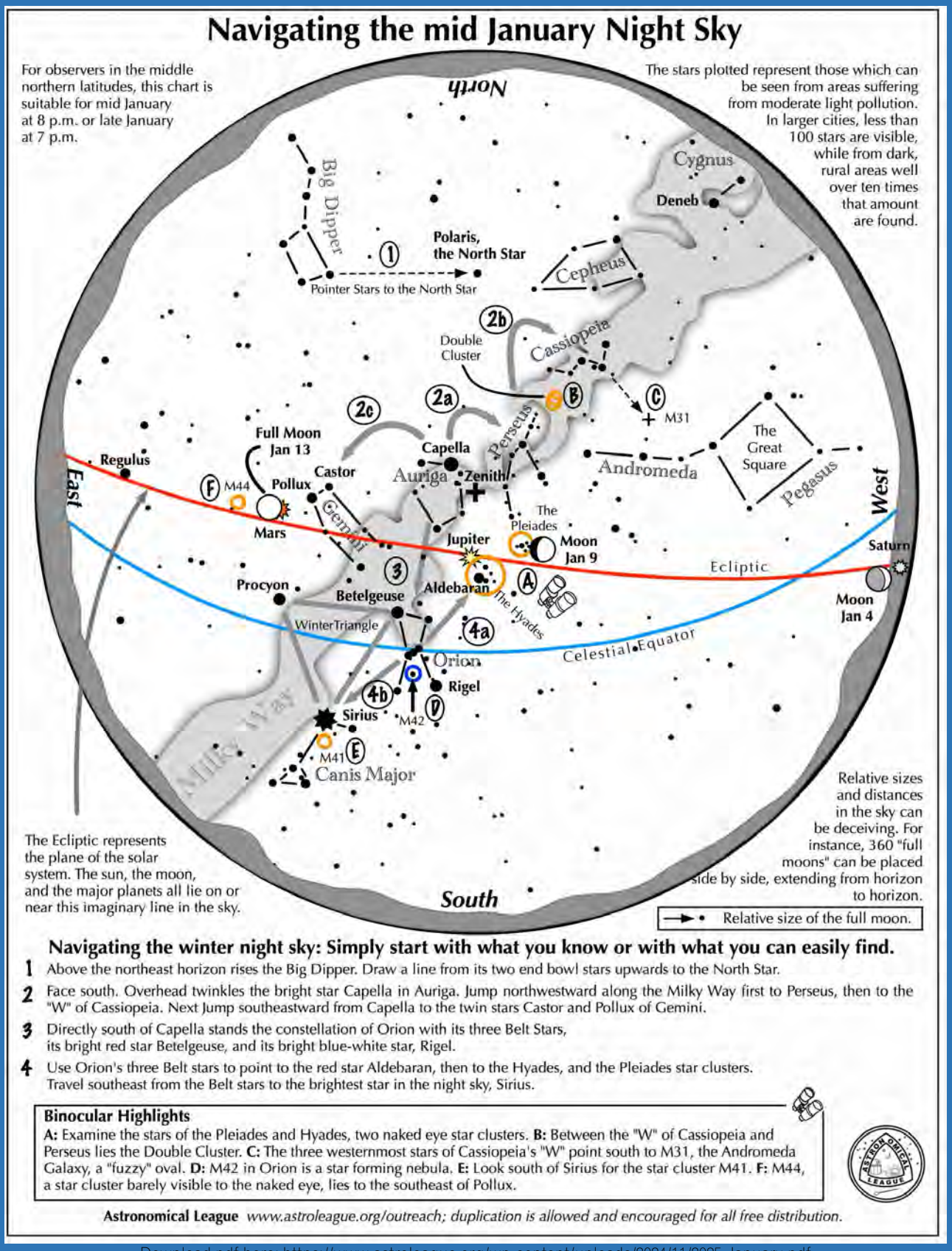
TVS E-Group
To Join the TVS E-Group just send an email to TVS at info@trivalleystargazers.org asking to join the group. Make sure you specify the email address you want to use to read and post to the group.

TVS ASTROPHOTOGRAPHY

Tadpoles, NGC 1893, by Ashish Joshi. See https://app.astrobin.com/u/surfinash?i=j2aijk#gallery for a full resolution image.

The Majestic Orion Nebula, by Imran Badr. See https://app.astrobin.com/?i=xtzbdz for a full resolution image.

NAVIGATING THE NIGHT SKY FOR JANUARY



Download pdf here: https://www.astroleague.org/wp-content/uploads/2024/11/2025-January.pdf

WHATS UP

Adapted from Sky & Telescope

All times are Pacific Standard Time

January 2025

21	Tue	In the morning, Moon sits just 3 ½° lower left of Spica. In the evening, Moon at last quarter.
23	Thu	Moon 2 ½° from Pollux in Gemini.
24	Fri	Algol shines at minimum brightness from about 9:27pm to 11:27pm.
27	Mon	Algol shines at minimum brightness from about 6:17pm to 8:17pm.
29	**Wed**	**New Moon**
31	Fri	At dusk, waxing crescent Moon around 3° lower right of Saturn with Venus above.

February 2025

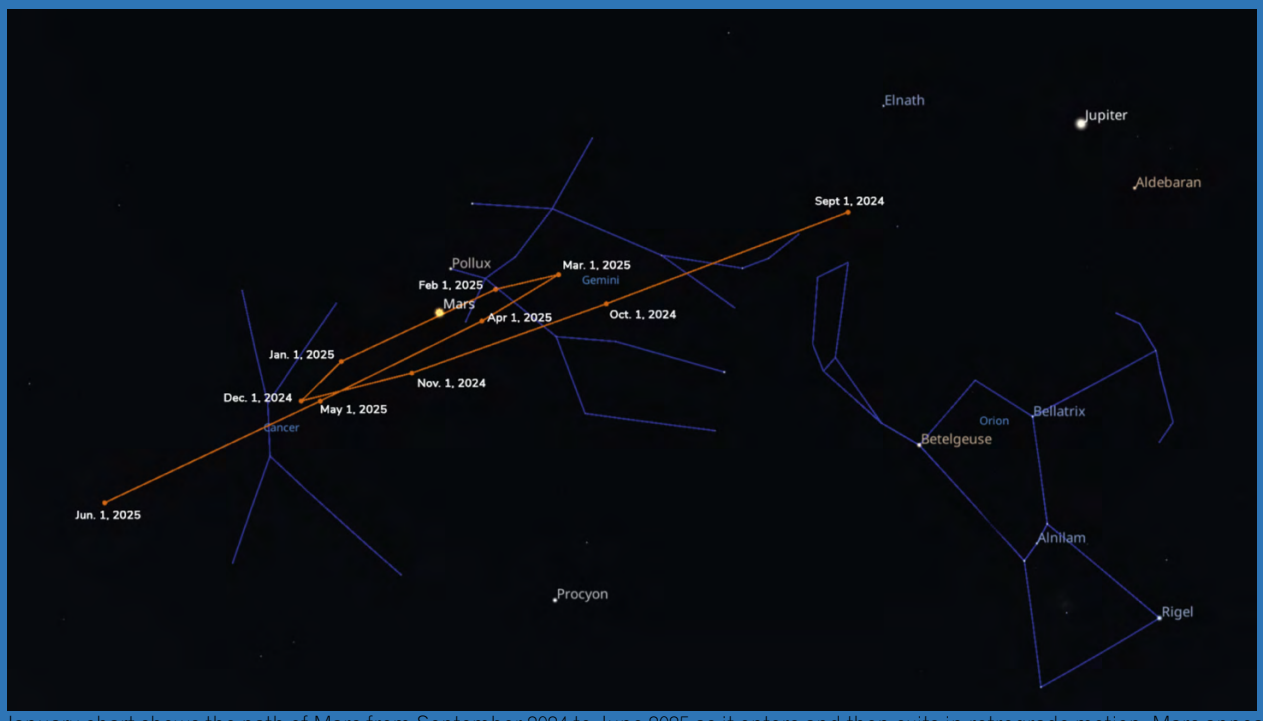
1	Sat	Waxing crescent moon is 2° lower left of Venus.
5	Wed	Moon at first quarter.
6	Thu	Looking in Taurus, Moon just 5° above Jupiter
9	Sun	Looking East at dusk, Moon, Mars, & Pollux from an equilateral triangle with each being about 2 ½° apart
12	**Wed**	**Full Moon.** Moon and Regulus rise together with only 1 ½° between them.
16	Sun	Algol shines at minimum brightness from about 8:02pm to 10:02pm.
17	Mon	Facing south in the morning, Moon is 1° right of Spica
20	Thu	Moon at last quarter

NASA NIGHT SKY NOTES

The Red Planet

By Kat Troche

Have you looked up at the night sky this season and noticed a bright object sporting a reddish hue to the left of Orion? This is none other than the planet Mars! January will be an excellent opportunity to spot this planet and some of its details with a medium-sized telescope. Be sure to catch these three events this month.



This mid-January chart shows the path of Mars from September 2024 to June 2025 as it enters and then exits in retrograde motion. Mars appears to change its direction of motion in the sky because Earth is passing the slower-moving Mars in its orbit. Credit: Stellarium

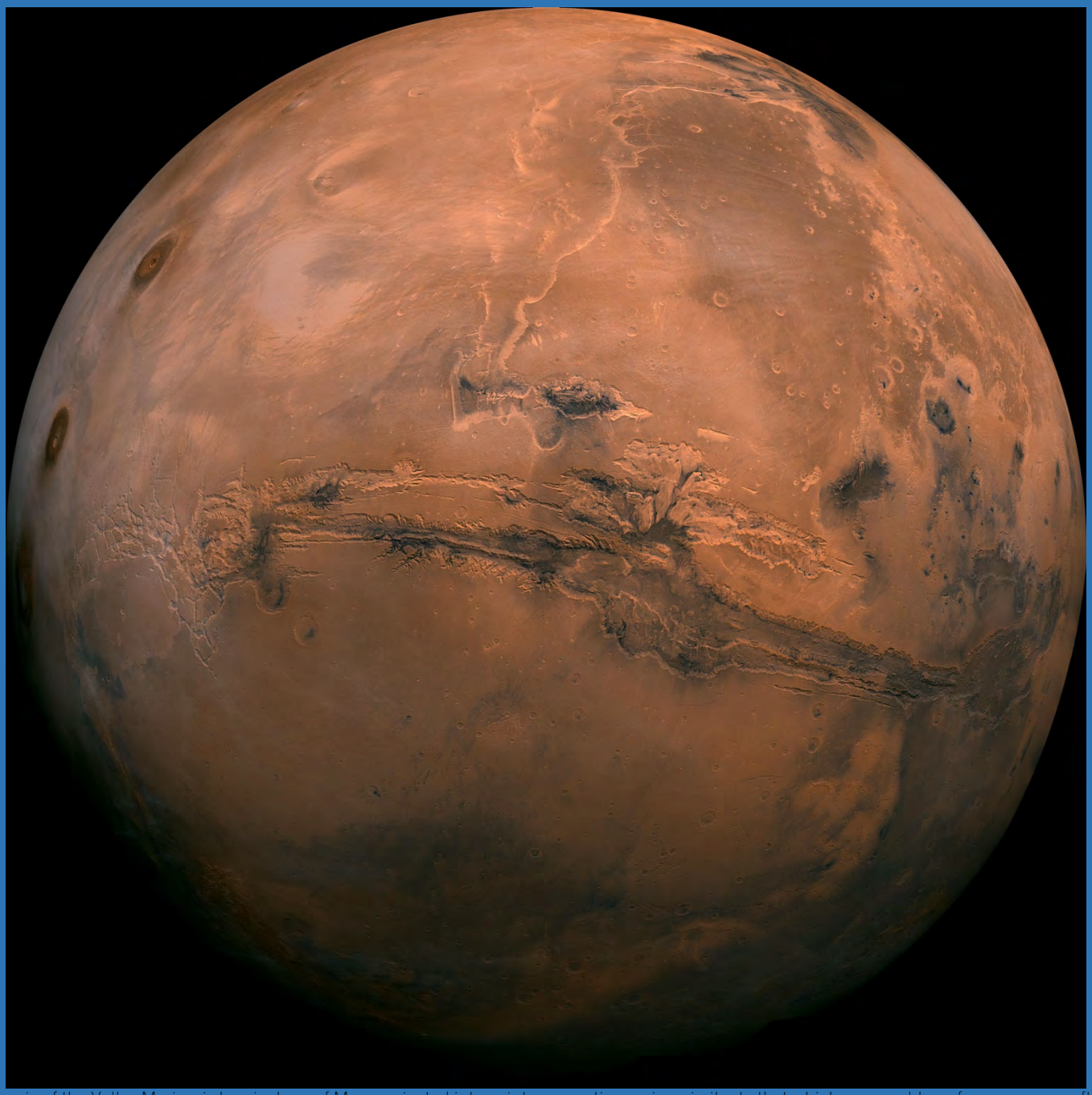
Martian Retrograde
Mars entered retrograde (or backward movement relative to its usual direction) on December 7, 2024, and will continue throughout January into February 23, 2025. You can track the planet's progress by sketching or photographing Mars' position relative to nearby stars. Be consistent with your observations, taking them every few nights or so as the weather permits. You can use free software like Stellarium or Stellarium Web (the browser version) to help you navigate the night as Mars treks around the sky. You can find Mars above the eastern horizon after 8:00 PM local time.

Hide and Seek
On the night of January 13th, you can watch Mars 'disappear' behind the Moon during an occultation. An occultation is when one celestial object passes directly in front of another, hiding the background object from view. This can happen with planets and stars in our night sky, depending on the orbit of an object and where you are on Earth, similar to eclipses.

A simulated view of the Moon as Mars begins its occultation on January 13, 2025. Credit: Stellarium

Depending on where you are within the contiguous United States, you can watch this event with the naked eye, binoculars, or a small telescope. The occultation will happen for over an hour in some parts of the US. You can use websites like Stellarium Web or the Astronomical League's 'Moon Occults Mars' chart to calculate the best time to see this event.

Closer and Closer
As you observe Mars this month to track its retrograde movement, you will notice that it will increase in brightness. This is because Mars will reach opposition by the evening of January 18th. Opposition happens when a planet is directly opposite the Sun, as seen from Earth. You don't need to be in any specific city to observe this event; you only need clear skies to observe that it gets brighter. It's also when Mars is closest to Earth, so you'll see more details in a telescope.
Want a quick and easy way to illustrate what opposition is for Jupiter, Saturn, Mars, or other outer worlds? Follow the instructions on our Toolkit Hack: Illustrating Opposition with Exploring the Solar System page using our Exploring Our Solar System activity!



A mosaic of the Valles Marineris hemisphere of Mars projected into point perspective, a view similar to that which one would see from a spacecraft. The mosaic is composed of 102 Viking Orbiter images of Mars. Credit: NASA/JPL-Caltech

Mars has fascinated humanity for centuries, with its earliest recorded observations dating back to the Bronze Age. By the 17th century, astronomers were able to identify features of the Martian surface, such as its ice caps and darker regions. Since the 1960s, exploration of the Red Planet has intensified with robotic missions from various space organizations. Currently, NASA has five active missions, including rovers and orbiters, with the future focused on human exploration and habitation. Mars will always fill us with a sense of wonder and adventure as we reach for its soil through initiatives such as the Moon to Mars Architecture and the Mars Sample Return campaign.

This article is distributed by NASA's Night Sky Network (NSN).
The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

CELEBRATING 20 YEARS: THE NIGHT SKY NETWORK (NSN)

By Vivian White and Kat Troche

NASA's Night Sky Network is one of the most successful and longstanding grassroots initiatives for public engagement in astronomy education. Started in 2004 with the PlanetQuest program out of the Jet Propulsion Laboratory and currently supported by NASA's Science Activation, the Night Sky Network (NSN) is critical in fostering science literacy through astronomy. By connecting NASA science and missions to support amateur astronomy clubs, NSN leverages the expertise and enthusiasm of club members, who bring this knowledge to schools, museums, observatories, and other organizations, bridging the gap between NASA science and the public. Now in its 20th year, NSN supports over 400 astronomy clubs dedicated to bringing the wonder of the night sky to their communities across the U.S. and connecting with 7.4 million people across the United States and its territories since its inception.

International Observe the Moon Night, September 2024. Credit: Oklahoma City Astronomy Club/Dave Huntz

Humble Beginnings

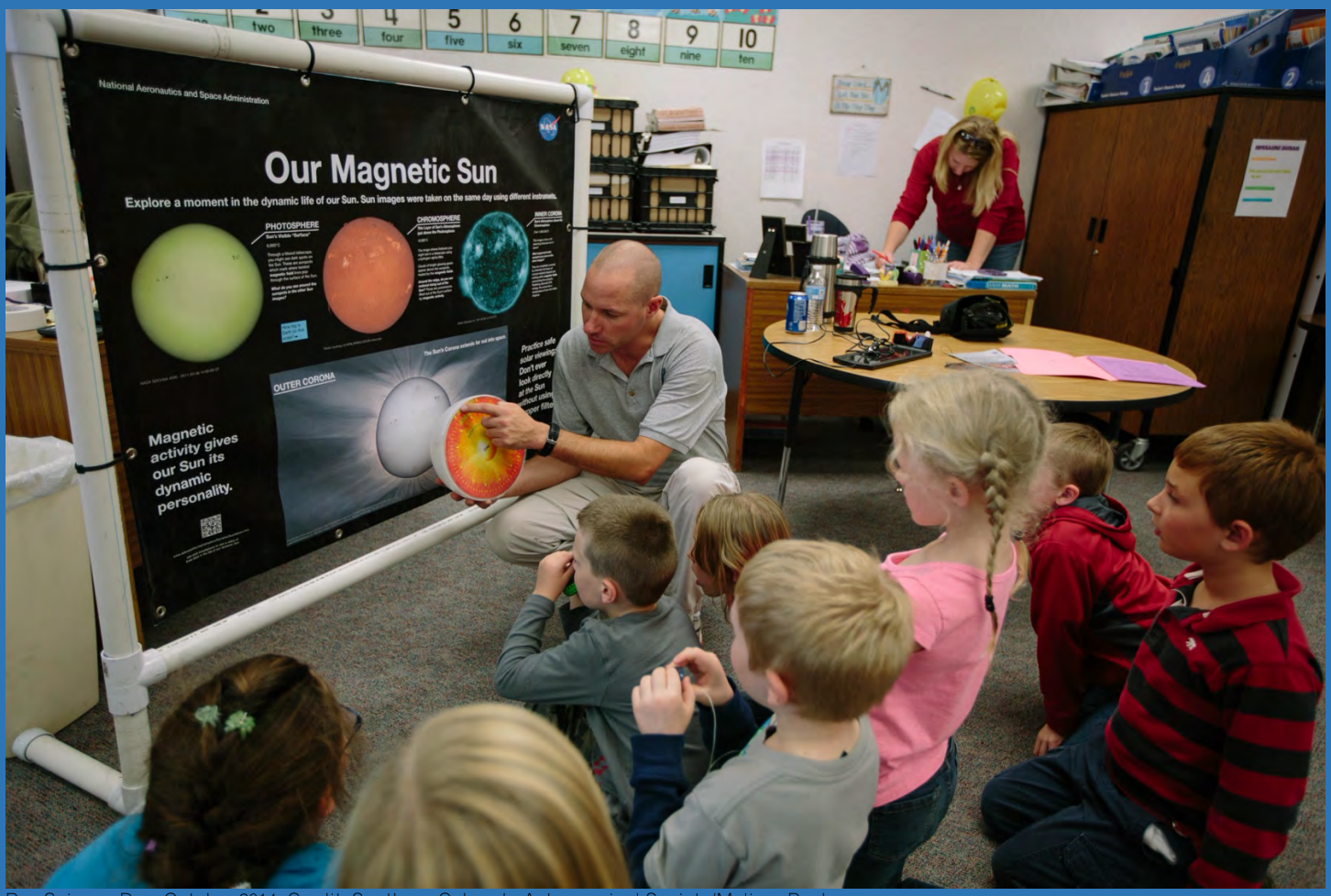
It all started with an idea – astronomy clubs already do significant outreach, and club members know a lot about astronomy (shown definitively by founder Marni Berendsen's research), and they love to talk with the public. How could NASA support these astronomy clubs in sharing current research and ideas through informal activities designed for use in the places where amateur astronomers conduct outreach? Thanks to funding through NASA JPL's PlanetQuest public engagement program, the Night Sky Network was born in 2004, with more than 100 clubs joining in the first year.

Raynham Public Observing Night, February 2004. Credit: Astronomical Society of Southern New England/Mark Gibson

As quoted from the first NSN news article, "NASA is very excited to be working closely with the amateur astronomy community," said Michael Greene, current Director of Communications and Education and former head of public engagement for JPL's Navigator Program and PlanetQuest initiatives. "Amateurs want more people to look at the sky and understand astronomy, and so do we. Connecting what we do with our missions to the sense of wonder that comes when you look up at the stars and the planets is one of our long-term objectives. We have a strong commitment to inspiring the next generation of explorers. Lending support to the energy that the amateur astronomy community brings to students and the public will allow NASA to reach many more people." Taking off like a rocket, Night Sky Network had over 100 clubs registered on their website within the first year.

The Toolkits

Outreach Toolkits were developed to assist clubs with their endeavors. These kits include educational materials, hands-on activities, and guides for explaining topics in an accessible way. So far, 13 toolkits have been created on topics ranging from the scale of the universe to how telescopes work. To qualify for these free Toolkits, clubs must be active in their communities, hosting two outreach events every three months or five outreach events within a calendar year. Supplemental toolkits were also created based on special events like the solar eclipses and the 50th anniversary of Apollo's Moon landing. A new toolkit is being developed to teach audiences about solar science, and NSN is on track to support clubs well into the future.



Rye Science Day, October 2014. Credit: Southern Colorado Astronomical Society/Malissa Pacheco

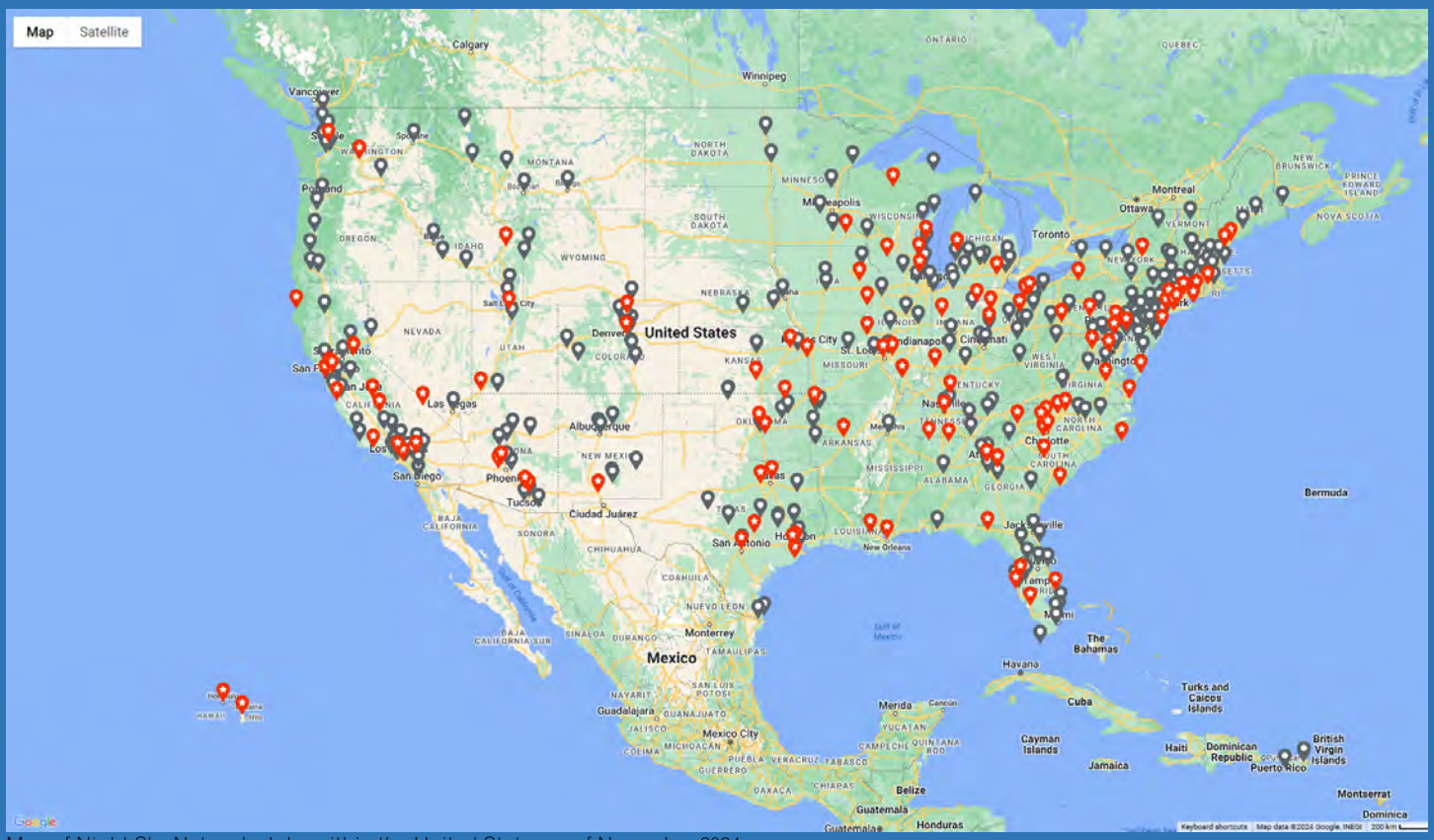
NSN also hosts archived video trainings on these toolkits and other topics via its YouTube channel and a monthly webinar series with scientists from various institutions worldwide. Lastly, a monthly segment called Night Sky Notes is produced for clubs to share with their audiences via newsletters and mailing lists.

Sharing the Universe

In 2007, a National Science Foundation grant funded further research into astronomy club needs. From that came three club resources: the Growing Your Astronomy Club and Getting Started with Outreach video series, an updated website with a national calendar, and club and event coordination. Now, you can find hundreds of monthly events nationwide, including virtual events you can join from anywhere.

Night Sky Network: Current and Future

As of November 2024, NSN has over 400 clubs as far north as Washington State, west as Hawaii, and south as far as Puerto Rico. Astronomy clubs worldwide share the wonder of the day and night sky with their communities, and the Night Sky Network is happy to support US clubs with public engagement tools.



Map of Night Sky Network clubs within the United States as of November 2024

Through their outreach efforts, member clubs have reached more than 7 million people to date, and the community is still going strong. Find an upcoming star party near you on our new public website.

This article is distributed by NASA's Night Sky Network (NSN).
The NSN program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

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 ($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.