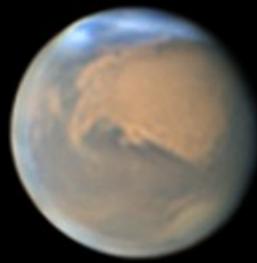


amateur ASTRONOMER



sharing the wonder and science of astronomy

The Earth Flies Past Mars



The Earth caught up with Mars on November 30th when it was at its closest to Earth this time around. This excellent image of Mars was taken on November 12th 2022 by (new member) Agapios Elia & Siegfried Trattig from Cyprus. Mars at the time had an angular diameter of 16.3 arc-seconds. They used a C9.25 SCT with a ZWO ADC and a Saturn-C SQR color camera.

PLAN ON IT!

Jan. 4 (7:30 pm) Astrophotography Workshop on-line Zoom meeting (see events calendar on website for link)

Jan. 6 (7:00 pm) In-person General Meeting at Radnor Township Building: topic: "Weather Forecasting for Astronomy" (will also be livestreamed). [More info](#)

Jan. 7 (1:00-3:00 pm) Telescope Workshop for Kids & Teens at Radnor Township Building. [More info](#)

Jan. 7 (3:00-4:30 pm) Celestial Objects for Small & Medium Telescopes at Radnor Township Building. [More info](#)

Jan. 21 New Moon. Dark Sky Observing — for the brave, the foolhardy, the well-prepared, and the cold-tolerant.

Feb. 3 (7:00 pm) In-person General Meeting at Radnor Township Building. Topic Gravitational Waves.

Feb. 25 (1:00-3:00 pm) Observing with Sky Safari at Radnor Township Building. [More info](#)

Feb. 25 (3:00-4:30 pm) Collimating Your Reflecting Telescope at Radnor Township Building. [More info](#)

FOR ALL EVENTS, SEE THE DVAA WEBSITE www.dvaa.org FOR ADDITIONAL INFORMATION AND UPDATES.

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Welcome New DVAA Members!

Aaron Berner (Wilmington, DE)
 Demetrius Bone (Royersford, PA)
 Agapios Elia (Cypress Nicosia)
 Kaitlyn Evans (Philadelphia, PA)
 Dorothy Everett-Hogue (Newtown Square, PA)
 Barbara Frank (Haverford, PA)
 Allathea Joniec (Philadelphia, PA)
 Kenneth A Koeplinger (Lansdale, PA)
 Dawn & Scott Manning (Oley, PA)
 Vaughn Newton (Chesterbrook, PA)
 Kristin, Robert, Kevin & Lyle May (Schwenksville, PA)
 Wayne Ross (West Chester, PA)
 Woody Sheetz-Willard (Haverford, PA)
 Melissa Varvarezis (Green Lane, PA)
 Elliot Wassel (Royersford, PA)

We welcome all new members to enjoy the most our club has to offer by participating in DVAA activities. You are encouraged to ask questions and pursue your interests in astronomy through the club.



We suggest that new members attend our observing events and special interest group meetings, or volunteer to help with an outreach event or committee. Participation can advance your skills and enjoyment of the hobby and help you get to know your fellow members. New members are entitled to all benefits of membership.

Brian Lee

Welcoming Committee Chair

welcoming@dvaa.org

DVAA Board & Committee Chairs

Title	Name	Email
President	Jan Rush	president@dvaa.org
Vice-President	Tom Nolasco	veep@dvaa.org
Secretary	George Keighton	secretary@dvaa.org
Treasurer & Astronomical League Coordinator	Scott Vanaman	treasurer@dvaa.org
Members-at-Large	Tracey Trapuzzano John Gaskill Jeff Miller	mbratlarge@dvaa.org
Astrophotography	Lou Varvarezis	astrophotography@dvaa.org
Camping and MSSP	Bill McGeeney	camping@dvaa.org
Door Prizes	Roy Patton	doorprizes@dvaa.org
Newsletter Committee	(see note at right)	newsletter@dvaa.org
Night Sky Network	Al Lamperti	nightsky@dvaa.org
Light Pollution Abatement	Barry Johnson	lpollution@dvaa.org
Observing		observing@dvaa.org
Outreach	Jan Rush	outreach@dvaa.org
Programs	Jeremy Carlo	programs@dvaa.org
Publicity	Bill McGeeney	publicity@dvaa.org
Scope Rentals	Joe Lamb	rentals@dvaa.org
Website	Louis Berman	website@dvaa.org
Welcoming	Brian Lee	welcoming@dvaa.org
Women of DVAA	Jan Rush	women@dvaa.org

Mark Your Calendars!

Upcoming Monthly Meetings

Friday, January 6, 2023: *Details on p. 10.*

Monthly Meetings have returned to the Radnor Township Building. All are welcome to attend in-person. Meetings will also be livestreamed on [YouTube](#).

Meeting Location: Radnorshire Room, 301 Iven Avenue, Radnor, PA 19087

Confirmed 2023 Meeting Dates (same location):
 January 6; February 3; March 3; April 14; May 5;
 June 2; July 7; August 4; September 22; October 20; November 17; December 15

Public Star Parties

Public star parties will resume in March, and dates for 2023 public star parties will be published next month.

DVAA public star parties are held at Valley Forge National Historical Park on the Model Airplane Field. ([Google Maps](#)). [Weather Hotline: 484-367-5278](#).

The monthly star party has returned to the traditional public telescope viewing format. The Board will continue to monitor the pandemic status throughout the year. Check the website (www.dvaa.org) for updates.

New this year: Backup dates will be designated the Sunday following each date above. Check your email or the website, or dial the hotline, for the final weather call.

Newsletter Editorial Committee: Jeremy Carlo, George Keighton, Tom Nolasco, Dana Priesing, Jan Rush and Barclay Thorn.

If you would be interested in joining us on the Newsletter Committee, or serving as guest editor for one month, just drop us a line at newsletter@dvaa.org — we'd love to have you on board, regardless of your experience level! Online tutorials are available to get you quickly up to speed.

Tom Nolasco is the lead editor for January. Thanks to Dana Priesing for leading the December issue.

Follow the DVAA on Facebook and YouTube!



DVAA [Facebook](#) group
 DVAA [Photo Enthusiasts](#)
[YouTube Channel](#)



Introducing the 2023 DVAA Board of Directors

According to the DVAA bylaws, the Board of Directors consists of 7 elected officers in addition to the Chairs of Programs, Welcoming, and Observing.

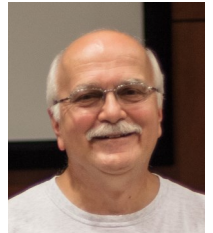
Elected Board Members



Jan Rush (President): Jan is a retired Clinical Research Physician who acquired her first tiny refractor telescope in 2004, and has been a DVAA member since 2013. She has previously served as Outreach Chair, Secretary, and Vice President. Jan operates a Celestron Nexstar 8SE enhanced with various gizmos and gadgets. She enjoys helping new astronomers to progress in the hobby, participating in community outreach events, and educating the public about the night sky. Jan is also a scuba diver, and enjoys classical music.

I

Tom Nolasco (Vice President): Tom is a retired Software Engineer who has been fascinated with astronomy since childhood. He was the third member of DVAA's predecessor organization, the Association of General Celestial Observers (AGCO). He is a member of the DVAA Newsletter committee, serving as lead editor of the monthly publication for several issues each year. Tom is a skilled amateur telescope maker, a frequent outreach and clinic volunteer, and creates exceptional images of the sun and planets.



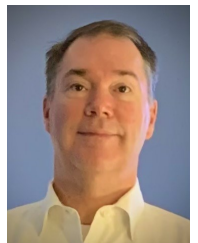
Scott Vanaman (Treasurer): Scott is a Software Application Manager who joined DVAA in January, 2021. He has previously served as Member-at-Large. He is an avid wide-field and deep sky astrophotographer, and is a regular at DVAA's community outreach events. Scott operates a William Optics Z73 APO with a dedicated one-shot color camera for astrophotography.

George Keighton (Secretary): George is a Production Chemist who joined DVAA in May, 2014. You'll find him on the astronomy field with his 10" Orion Dobsonian telescope. He's a regular at the Valley Forge Public Star Party and numerous community outreach events, as well as the observing clinics. George is a member of the DVAA Newsletter committee, serving as lead editor of the monthly publication for several issues each year. And he never fails to capture memorable photographs of every DVAA event he attends.



Tracey Trapuzzano (Member-at-Large): Tracey is a Registered Nurse and Clinical Research Coordinator who joined DVAA in January, 2017. This is her third term as Member-at-Large. She observes with an 8" Dobsonian telescope built by her husband Gary, and both are frequent outreach participants. Tracey is working her way through the Messier list – observing and logging all of the Messier objects.

John Gaskill (Member-at-Large): John is a Consumer Protection Agent at the Pennsylvania Office of Attorney General and joined DVAA in March, 2021. You'll find him on the astronomy field at community outreach events with his 8" Orion Dobsonian telescope. He and his wife, Sheila, enjoy introducing the stars and planets to aspiring amateur astronomers. John is also a competitive golfer who often travels on overnight trips with his Orion StarMax 90mm telescope.



Jeff Miller (Member-at-Large): Jeff is a semi-retired mobile Dentist. He has had an intense interest in space and astronomy since watching the Apollo flights in the 60's and 70's. Jeff currently uses a Celestron Nexstar 8SE for planetary and DSO observing, and joined DVAA in May, 2021. He has ventured into astrophotography and seeks to improve his skills in this area. Jeff and his wife make an annual trek to Cherry Springs in Coudersport to enjoy the wondrous night skies there, and they have also attended several DVAA Star Parties. Jeff's other main hobby is amateur high power rocketry.



Appointed Board Members



Jeremy Carlo (Programs Chair): Jeremy is Associate Professor of Physics at Villanova University, and an amateur astronomer for about 30 years. As Programs Chair, he has brought top-quality monthly presenters to the DVAA membership since 2017, shepherding the monthly DVAA meetings through the challenges of the pandemic. He is a member of the Newsletter Committee, serving as lead editor of the monthly publication for several issues each year. Jeremy is known for his encyclopedic knowledge of visual observing, and observes with a new 18" Obsession Dobsonian telescope and a homemade 10" Dob using a mirror dating from 1939. You will often find him observing at dark-sky sites, or helping out at observing clinics and the Valley Forge Star Parties.

Brian Lee (Welcoming Chair): Brian is an Electronics Technician who has served as DVAA Welcoming Chair since 2018. He's a regular at the Valley Forge Public Star Parties, operating his Orion 10 inch DOB or Stellarvue 80 mm refractor. For many years, Brian filmed each monthly meeting and created an extensive video archive. Now that monthly meetings are streamed via YouTube, Brian puts his technical skills to use assisting the Programs Chair with the technical aspects of the meetings, welcomes attendees and tracks attendance at the monthly meetings.



(Note: The Observing Chair is also an appointed Board Member but the position is currently vacant).

It's Renewal Season Again!

It's time for members to renew annual memberships for access to another great year of DVAA programming and activities. Renewal is easily accomplished.

If you have a renewal due you should have already received an email titled "Delaware Valley Amateur Astronomers - Membership Renewal." Simply click on the link in the body of the email. Alternatively, you can login to the website then click on your name in the upper-right hand corner of the site. If you have a Renewal or Payment due there will be a red refresh icon or dollar sign to the left of your name. After clicking on your name, a drop-down menu will be displayed where you can click on a "Renew" and/or "Payment Due" link. Clicking on either one of these links will bring up a series of web forms for you to (a) verify your contact info and (b) enter membership and/or payment info. If you were a new member in 2022 and joined in September, October, November, or December, your membership will not expire until December 31, 2023.

If you have any problems with the online process, or if you would like to have your renewal processed manually, please reach out to Jan Rush (president@dvaa.org) or to our treasurer Scott Vanaman (treasurer@dvaa.org).

Your membership dollars support the club by paying for professional speakers, Astronomical League fees, website fees, insurance, members-only events, etc. Check out the [Benefits](#) page for more info.

Finally, thanks for being a DVAA member. We are members of the best astronomy club around, and we can't wait to kick off another great year!

Jan Rush, President DVAA

Happy New Year, DVAA

Jan Rush [email](#)



Welcome to a new year with DVAA, our first full post-pandemic year with all operations back to normal. Many of you may not be aware of this, but DVAA maintains a small dedicated storage unit in King of Prussia. Over the years it had become glutted with miscellany, including paper records going back about 15 years. In an irrational moment this past summer, I was inspired to paw through the old paper, digitize everything, and post the files in the "Documents" section of the DVAA website so they would be available to our membership. This task was bearable only because I took time to read a moderate portion of the material, which allowed a fascinating window into the Club's recent history. Over the next year I'll share some of the interesting tidbits uncovered, so the readership of this newsletter can make the journey too.

One big takeaway is how thankful we should be for the leadership of our club over the years. I'd like to personally thank these DVAA members who have served as past presidents. Each one has left his or her mark on the Club!

Marilyn Michalski 2000-2002
John Symborski 2003-2004
Mike Atwell 2005-2007
Joe Lamb 2008-2010
Len Jensen 2011-2013
Bill McGeeney 2014-2016
Louis Berman 2017-2019
Harold Goldner 2020-2022

I especially thank our outgoing president, Harold Goldner, for his leadership through the uncertain days of the Covid-19 pandemic, and for his insightful and creative monthly newsletter columns!

In the upcoming year, I hope we can maintain or renew the best practices of the past, and improve and expand on the Club's offerings and activities. We have a very busy winter and spring already in the offing. We have scheduled a total of 5 indoor workshops for members, and one or more is sure to interest you (see descriptions of the first four elsewhere in this newsletter). We are also reviving the popular "Friends and Family Night" at the Mallon Planetarium in Eagleville. This wonderful local planetarium is directed by DVAA member Adam Chantry, and he has planned a special show just for DVAA. There are still a couple of discounted tickets in the DVAA block for Neil deGrasse Tyson's StarTalk show at the Keswick Theater. And new this year, we have reserved a private lodge near Cherry Springs State Park for a new moon weekend in April. And of course, in March we will re-start our monthly public star parties held in Valley Forge National Historical Park.

I'm very happy to be serving as your president for 2023, and incredibly proud to belong to this dynamic astronomical organization!



At the December DVAA meeting in Radnor, outgoing president Harold Goldner receives a rather challenging 12000 piece puzzle complete with magnifying glass and tweezers from incoming president Jan Rush.

Note, it was a prank box which actually contained a gift certificate to the new Bala Cynwyd restaurant Lark.

Photo credit: Mitch Berger

A Glimpse of Things to see in 2023

2023 is shaping up to be another exciting observing year with close planetary encounters, moonless meteors showers, a solar eclipse, late summer and autumn oppositions of the gas giants, a potential naked eye comet, an occultation of Jupiter and more. Start marking your calendars.

Good News for the Two Best Meteor Showers of 2023

Perseids peak this year in the early hours of Aug 13th with a favorable 10% waning crescent moon

Geminids peak this year on Dec 14th with a favorable 8% waxing crescent moon

Partial Solar Eclipse

On Oct 14th there will be an Annular Eclipse of the Sun visible for parts of North, Central and South America. In the U.S., the path of annularity will cross over Oregon, California, Nevada, Idaho, Utah, Arizona, Colorado, New Mexico, and Texas. For most of us, who will be staying closer to home in the Philadelphia area, we will witness a partial solar eclipse where the moon will cover 37.7% of the Sun at maximum eclipse.

A Cosmic Visitor

On March 2, 2022, using images taken by the 48-inch Schmidt telescope at Mount Palomar, the Zwicky Transient Facility (ZTF) identified a new 17th magnitude asteroid-like object. Soon a small coma was detected and it was identified as a comet and given the designation C/2022 E3 (ZTF).

The comet begins the month as a 10th magnitude object in the constellation Corona Borealis, but by the end of the month, it will have traveled through the constellations of Boötes, Draco and become a circumpolar object in Ursa Minor brightening several magnitudes along the way. From January 29th through February 4th its apparent motion will be booking along to the tune of 6 degrees per day. That's equivalent to 15 seconds of arc per minute. At high magnification its movement across the sky may be visible visually through a telescope. Would that be cool to see or what? Closest approach to the Earth occurs on February 2nd passing within 0.28 astronomical units of the Earth (42 million km) and possibly brightening to magnitude 5 or 6 making it visible with the naked eye from a dark site or in binoculars locally. You can use the link below to keep tabs on the brightness and location of comet ZTF throughout the month.

<https://theskylive.com/c2022e3-info>

Comet C/2022 E3 (ZTF) has spent the last 50,000 years slogging its way through the solar system to get here. So get outside and give it a warm welcome.

Rare Grazing occultation of Ganymede in 2023

On the morning of Sep 25th a very rare grazing occultation of Ganymede by Jupiter occurs between 4 and 5 a.m. EDT. Ganymede is only about 1.8 arc-seconds across so this event could be challenging to image or observe visually, but so cool if you're lucky enough you see it. Well worth losing a couple of hours of sleep to give it a try.

Opposition Dates of the Big 2 in 2023:

Saturn – Aug 26, 2023 @ 19 arc-seconds, the ring inclination will be 9 degrees to our line of sight and be noticeably narrower this year as compared to 2022.

Jupiter – Sep 26, 2022 @ 48.8 arc-seconds

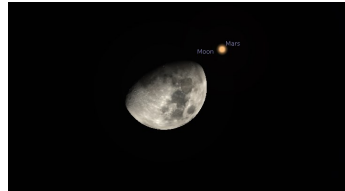
Close Planetary Appulses in 2023

An Appulse is when two or more astronomical objects appear close together in the sky. In the events listed both objects will be visible in the same telescopic field of view at low to medium magnification. All but one event occur in the evening sky.

Jan 22 - Saturn 0.4 degrees to the right of Venus



Jan 30/31 - Mars closes to within 0.2 degrees to the right of the moon
(similar to the Dec 7th event that was clouded out locally)



Feb 11- Mars roughly 1 degree east of Comet ZTF (C/2022 E3)

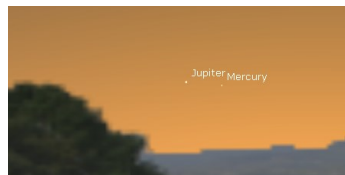
Feb 14 - Neptune is 0.5 degrees above Venus



Mar 1 - Jupiter 0.5 degrees left of Venus



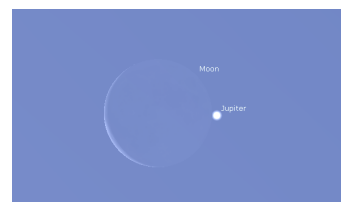
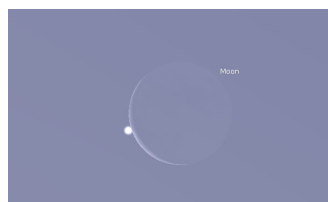
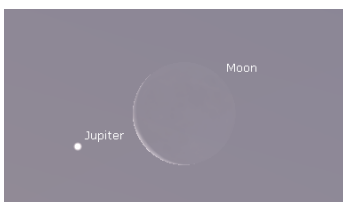
Mar 27 - Mercury 1.3 degrees to the right of Jupiter



Mar 30 - Uranus 1.3 degrees to the lower left of Venus



May 17 - Waning crescent Moon occults Jupiter shortly after sunrise (daytime morning event)



The star fields were captured from Stellarium, the free planetarium software available for download at www.stellarium.org.

The December Monthly Meeting

Jeremy P. Carlo [email](#)



The DVAA December 2022 meeting was opened by President Harold Goldner, his final meeting as President as his 3-year term came to an end this month. Harold welcomed attendees and updated the club on some recent activities.

Welcoming Chair Brian Lee welcomed 8 new members, several of whom were in attendance. Treasurer Lou Berman, also term-limited and in his final month in office, reminded members to renew their memberships using the DVAA website. Vice President Jan Rush announced upcoming clinics for new members to be held at Radnor (see p.11 in this issue for more information). Jan also thanked Harold for his 3 years of service with a “special gift” (see photo on p.5 in this issue) and the heartfelt thanks of the club, citing in particular his leadership during the pandemic, his assistance with a number of legal and administrative issues, and his monthly newsletter columns. Harold reminded members of the upcoming Annual Business meeting to be held on Sunday, December 11. Astrophotography Chair Lou Varvarezis gave an update on astrophotography activities in the club, and the club voted to give Agapios Elia, the Cyprus astrophotographer who has been instrumental in several Zoom sessions, an Honorary membership to the DVAA.

Following these committee presentations, Programs Chair Jeremy Carlo gave an introduction to the evening’s featured program, a member night on “Winter Observing.”

Jeremy started the program with “Winter Observing 101.” Why observe in winter? Winter features long nights, early sunsets, and typically cold, clear air with good transparency (although seeing can be more variable). For planetary observers, the ecliptic is high up in the sky, so you see planets without having to look through too much of the atmosphere. The winter sky features constellations we see while looking roughly away from the galactic center, and toward the inner edge of the Orion arm of the galaxy, which is the closest arm to us, with a lot of fantastic nebulae, clusters, and star-forming regions. And, most importantly, you get the bragging rights of saying you’ve observed in the dead of winter! Jeremy showed a wide-field star chart of the winter sky, centered roughly on Orion. Surrounding Orion are Eridanus to the west, Taurus to the northwest, Auriga to the north, Gemini to the northeast, Monoceros and Canis Minor to the east, Canis Major and Puppis to

the southeast, and Lepus to the south. Jeremy showed a chart of rising and setting times of M42, the Orion Nebula, indicating why you need to get out in the winter to see objects in this area of the sky. In principle you could stay up until sunrise in the late summer or fall, or cross your fingers and hope for good weather in the early spring, but if you want to see these objects at a more reasonable hour, winter is the only game in town.

Now that we are all graduates of “Winter Observing 101,” Al Lamperti set out on some more specific targets, focusing on sights in Canis Major and nearby constellations. Al set out the “Winter Triangle” composed of the bright stars Sirius (in Canis Major), Betelgeuse (in Orion), and Procyon (in Canis Minor). Canis Major is a small but bright constellation in the southern winter sky, featuring a number of objects: the open cluster M41, several multiple stars including Pi CMa, 17 CMa, and Sirius itself, with a dim white dwarf companion. Observing Sirius B can be quite a challenge due to their close separation and wide magnitude disparity, so Al outlined some tips for seeing it, including making a partial aperture mask to block off the bright light of Sirius A in your eyepiece. Moving over to Puppis, Al discussed several open clusters, including M93, M47, and M46 (the latter of which has the planetary nebula NGC 2438 in the same field). Canis Minor is an even smaller constellation with few deep-sky objects, although its alpha star, Procyon, is itself a double star. Similar to Sirius, Procyon’s companion star is a dim white dwarf and a similar observing challenge, albeit a bit closer in separation, and 1-2 magnitudes dimmer. Finally, as an aside Al talked about the rings of Saturn. As Saturn completes its 30-year orbit around the sun, its rings appear to “open” and “close” due to its 27 degree axial tilt (similar to earth’s). Currently, Saturn’s rings are open to about their widest, so get out there and observe Saturn!

Next, Jeremy retook the stage to talk about winter weather observing gear. Just how do you keep from freezing in places you didn’t know you had places? First, a few basic rules. The “buddy system” at a remote observing site is always a good idea, especially so in winter. You should be prepared to spend the night, in case you run into some difficulties (i.e. car doesn’t start or gets stuck). Be prepared for it to be significantly colder than the weather forecast indicates; it’s much better to bring too much gear than not enough! Wearing layers is key, and pay attention to your extremities (head, feet, and hands). Jeremy recommends starting off with a

(Continued on next page)

The December Monthly Meeting (continued)

good base layer, such as long underwear. Layer other clothing on top of that. A good pair of insulated coveralls forms a great outer layer, since it covers both your upper and lower body. A good pair of warm boots is a must, as is a hat or hood (and perhaps both!) to cover your head. Hand warmers are available in several different modalities – disposable chemical warmers, reusable chemical warmers, battery-operated warmers, and lighter-fluid “Zippo” type warmers. Or put your hands in your pockets!

Or, for a different take on things, try heading down to the Winter Star Party in the Florida Keys! The 2023 Winter Star Party is scheduled for February 13-19, and attracts astronomers from throughout much of the US. Jeremy reported on his experiences there in 2016, taking the Amtrak Auto Train down to Orlando, and amenities at the site (although they are likely different now, as the Keys took a direct hit from Hurricane Irma in 2017 and much of the camp had to be rebuilt).

Jan Rush then gave a short presentation on “Stargazing in Hawai’i.” Specifically, the Big Island (formally named Hawai’i), which is home to extinct volcano Mauna Kea and the (mostly extinct, but recently active) Mauna Loa. Mauna Loa is home to a long-term atmospheric CO₂ monitoring station, and the recent eruption will result in an interruption to that continuous data, as well as interruptions to some near-earth object monitoring facilities. Mauna Kea is home to a number of astronomical observatories, and formed the bulk of Jan’s talk. While the summit can be accessed, Jan elected to travel only to the visitor’s station about 2/3 of the way to the top (about 9200 feet); the remaining road to the summit (at 13,800 feet) is quite treacherous and altitude sickness can become an issue above 10,000 feet. Being far from the cities of Kona and Hilo on opposite coasts of the Big Island, Mauna Kea is accessed by a long drive on the so-called Saddle Road, and has quite dark skies. Even from the Visitor’s Center you can do some good observing (and, in fact, hypoxia at high altitudes impedes your

ability to do visual astronomy from the summit anyway). Jan gave some specific recommendations for visiting the Big Island and Mauna Kea, which can be found in her presentation online.

Finally, members of the Astrophotography Committee – Gary Trapuzzano, Joe Lamb, and Lou Varvarezis - showed off some highlights of the winter sky. Going beyond the Orion Nebula, the Flame Nebula (NGC 2024) and the Horsehead Nebula (IC 434) are right near Alnitak (the leftmost star in Orion’s belt). The Running Man (NGC 1973-5-7) can be found right near M42, and consists of nebulosity and a distinctive grouping of stars. In Canis Major, the nebula Thor’s Helmet (NGC 2349) is a popular target. The Pleiades (M45) in Taurus is a cluster with nebulosity which is of interest in all equipment from naked-eye to larger telescopes. The Flaming Star nebula (IC 405) and the neighboring Tadpole Nebula (IC 410) can be found in Auriga, and Gary showed off a technique to remove stars from the background of an image. The Rosette Nebula (NGC 2237) and its associated cluster (NGC 2244) in Monoceros are popular targets for rich-field scopes due to their large size. Further north in Cassiopeia, the Heart Nebula (IC 1805 and a few other designations) is a popular photographic target. There are also many interesting star clusters in the winter sky. These include M35 (and the much smaller, but equally rich, NGC 2158), in Gemini, M46 in Puppis (which, as mentioned before, also includes the planetary nebula NGC 2438), M47 in Puppis. The edge-on galaxy NGC891 in Andromeda would more correctly be classified as a fall object, although it is visible well into the winter. M81 and M82 are two nearby galaxies in Ursa Major; while these would typically be considered spring objects, they are well-placed in the winter sky as the Big Dipper ascends in the northern sky.

Many thanks to our presenters who gave a number of different perspectives on winter observing, and hope to see you out on the observing field!



Photo credit: George Keighton

Announcing the DVAA Youth Astronomy Awards for 2022-2023

Cash prizes for elementary, junior high and high school students!

Click on the "Youth Awards" button on the home page. www.dvaa.org.

Next Monthly Meeting: January 6, 2023

"Weather Forecasting for Astronomy" - Lou Ruh

Lou is a PA Region Skywarn Coordinator for National Weather Service .



A review of how weather observations are made and collected and how that affects forecasting visibility, clouds and other atmospheric aerosols. Forecasting atmospheric thermal turbulence will also be discussed. A follow up on the effects of 2021's Hurricane Ida remnants will be presented, with a concentration on the EF3 tornado that impacted the Fort Washington/Upper Dublin area of PA.

ASTRONOMICAL LEAGUE

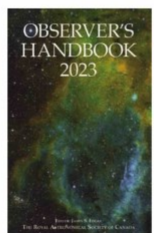
The RASC Observer's Handbook and Observer's Calendar are now available for pre-order on the League Sales webstore!

OBSERVER'S CALENDAR



A beautiful complement to the Handbook, filled with dates of notable celestial events – lunar and planetary conjunctions, eclipses, meteor showers and more.

\$20 EACH + \$6 S+H
ORDERS OF 6 OR MORE: \$18 EACH WITH FREE SHIPPING!



OBSERVER'S HANDBOOK

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• The Sky Month by Month
• Eclipses • The Moon • Time (civil, astronomical, standards, & more) • The Sun
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League Sales

<https://store.astroleague.org/index.php>

Star Talk Live with Neil deGrasse Tyson

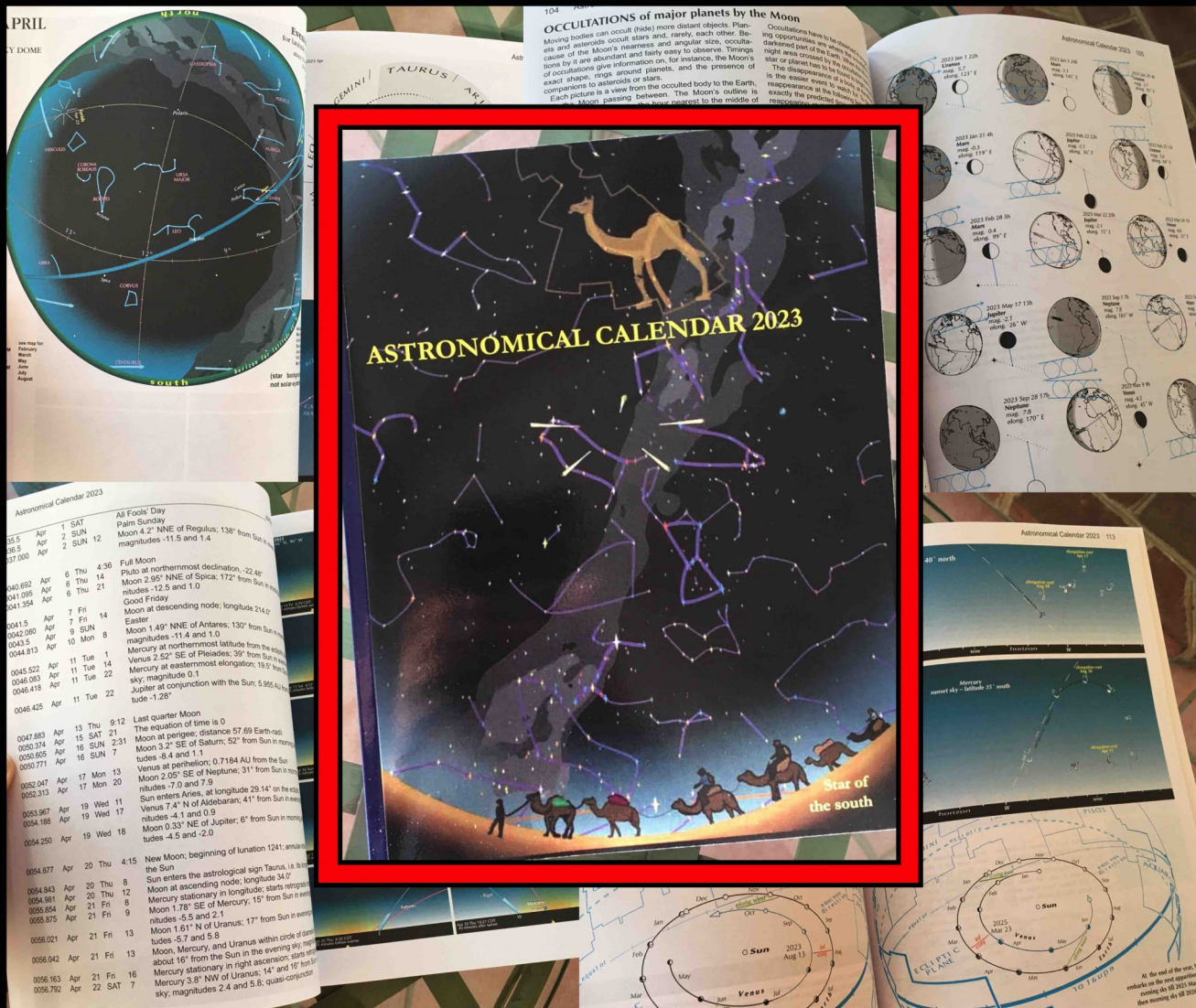
Thu Apr 27, 2023
Keswick Theatre
Glenside, PA



Many of you are no doubt fans of Neil deGrasse Tyson and his popular TV show "Star Talk". An upcoming episode is being filmed at the Keswick Theater in Glenside on Thursday, April 27 (8pm). DVAA has acquired a block of 20 tickets for the live audience, which are available to members at the discounted price of \$35/ticket. Demand has been brisk, and only a few tickets remain in the DVAA block. If tickets are sold out, you may register for the waiting list in case any current ticket holders are unable to attend. Register for a tickets in the DVAA block at DVAA.org using this suggested procedure:

1. Use a computer not a smart phone
2. Be sure you are logged on to the website www.dvaa.org
3. Click the Events tab
4. Navigate to April 2023 and click on the Neil deGrasse Tyson event
5. Click the Register button and follow the prompts to register and pay by credit card.

You will receive a registration confirmation. Tickets will be distributed electronically after January 1, 2023 to the email address on your DVAA member profile. General admission tickets may also be available through the [Keswick Theater](#).



ASTRONOMICAL CALENDAR 2023

... GUY OTTEWELL

The whole year's events in the night sky. Monthly spreads with sky domes and listing of 568 events; sections on the Sun and seasons, the Moon, eclipses, occultations, each planet, asteroids, meteor showers; glossary of terms, full explanations. Many sky scenes, charts, and diagrams in full color, including 3-D views of space.

This is the revival of the a famous book that was published for more than 40 years, then continued as an electronic document; now it is both electronic and printed.

Print version: at Amazon — \$21

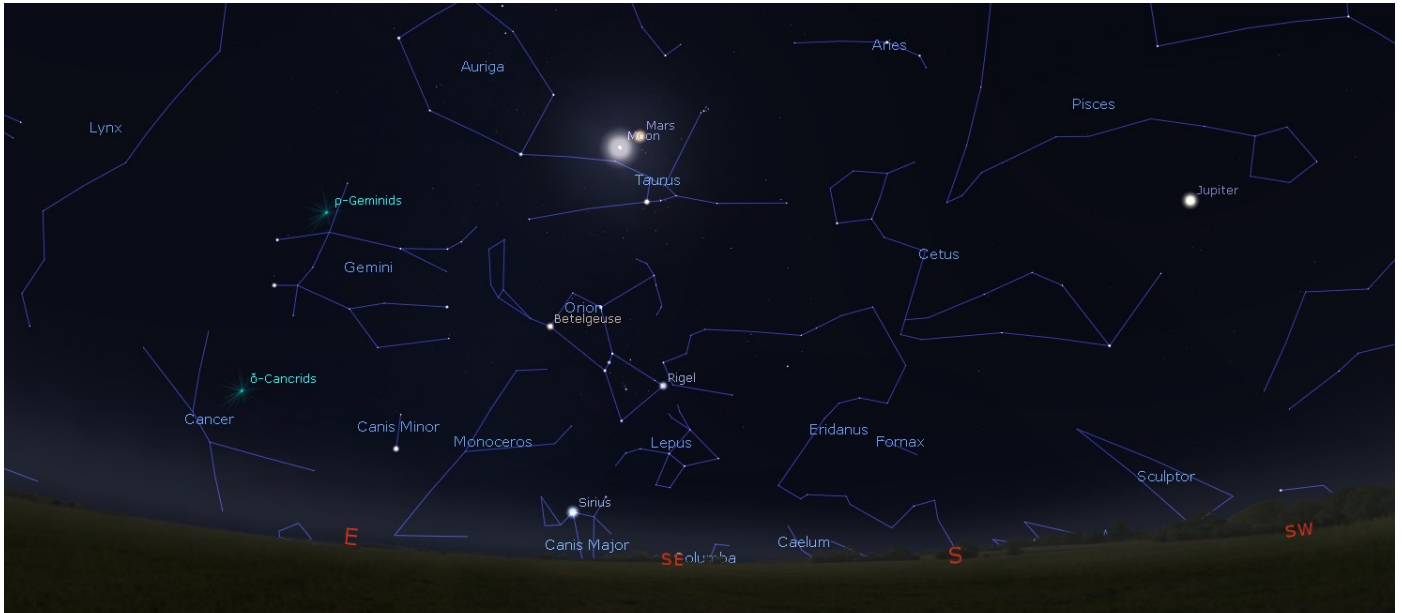
Electronic version — \$12

<https://www.universalworkshop.com/astronomical-calendar-2023/>

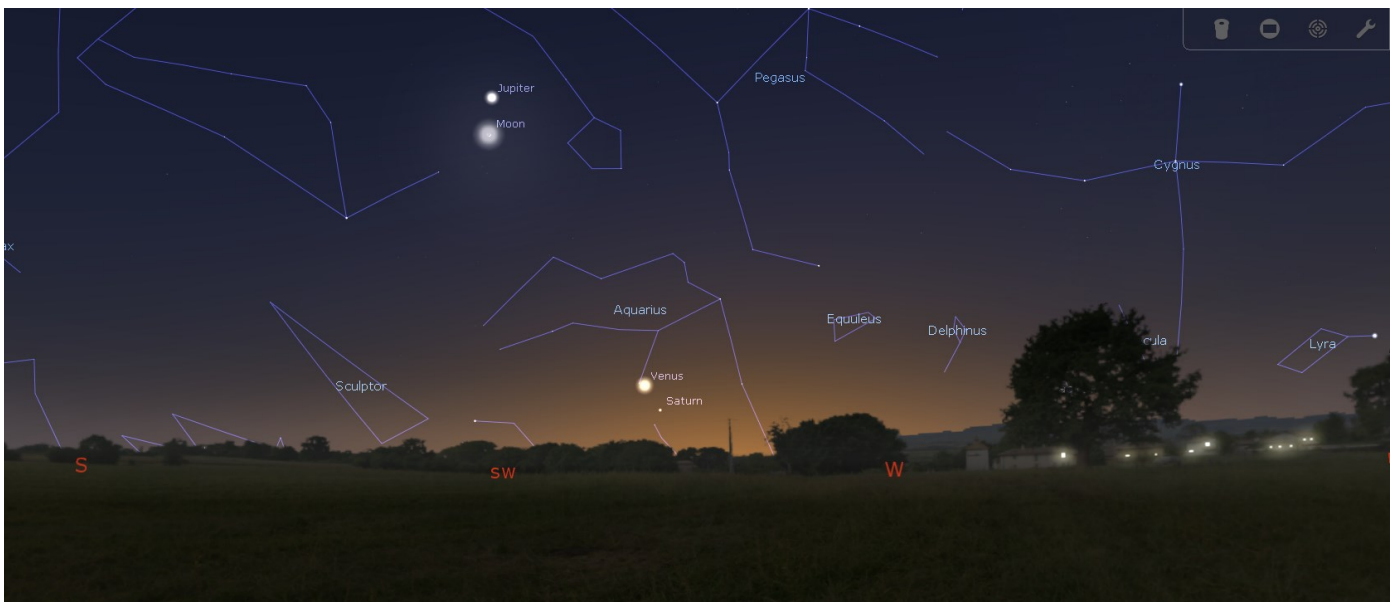
<https://www.universalworkshop.com/astronomical-calendar-2023/>

Beautiful January Moonlit Nights

Right after dinner on January 3rd, pop your head outside, even if just for a minute, to see the red planet Mars shining brightly at magnitude -1.1 less than 3 degrees and to the upper right of the waxing gibbous Moon. This will be a beautiful sight and worth the look. If you have a pair of binoculars bring them with you outside as well. A bright planet close to the moon is one of the sights the whole world gets to enjoy regardless if you live in the country or in the center of a city. So take a moment to soak in the sight and think about how beautiful the sky truly is. Ok, now get back inside and warm up with a cup of hot chocolate.



On January 25th there's another pretty Moon & bright planet event. This time it's the bright planet Jupiter very near the waxing crescent Moon. The thin Moon with bright earthshine makes this a don't miss event. You know the drill, pop outside, bring binoculars, go back in and warm up with hot chocolate.



The star fields were captured from Stellarium, the free planetarium software available for download at www.stellarium.org.

Indoor Workshops: Telescopes & Observing

Jan Rush [email](#)

During the winter months, DVAA will be offering free indoor astronomy workshops at the Radnor Township Municipal Building for members and family on Jan. 7, Feb. 25, and March 4. The workshops on Jan. 7, and Feb. 25 are open for registration!

Telescope Workshop for Kids and Teens

Saturday, January 7, 2023, 1:00 PM until 3:00 PM

A workshop dedicated just to younger astronomy enthusiasts!

In this hands-on workshop, we will have different types of scopes set up for you to operate. Attendees who own telescopes can bring their scopes indoors to practice set up, aligning and focusing, and receive hints and pointers on operating the scope and observing the sky. We will have information on astronomy apps, rental scopes, DVAA Youth Astronomy Awards and the Astronomical League's Sky Puppy program. This is also a chance to meet other kids and teens who are interested in astronomy!

Open to junior DVAA members, family members, and children and grandchildren of regular members. Register [here](#). We will need at least 5 registrants in order to hold the workshop. *Attendees under age 18 must be accompanied by a parent or responsible adult.*

Celestial Objects for Small and Medium Telescopes

Saturday, January 7, 2023, 3:00 PM until 4:30 PM

This presentation will begin with a lecture/slideshow on visual observing of celestial objects, presented by Master Observer Al Lamperti. If you have ever wondered about the difference between an asterism and an open cluster, or how to tell a nebula from a galaxy when viewed with a backyard telescope, this presentation will clear up those mysteries. After the presentation, small telescopes will be available in the room for attendees who would like to stay and learn more about types of telescopes and how they are operated.

Register [here](#). Open to anyone nine years and older. We need at least 8 registrants in order to hold the workshop. *Attendees under age 18 must be accompanied by a parent or responsible adult.*

Observing with SkySafari

Saturday, February 25, 2023, 1:30 PM until 3:00 PM

SkySafari is the most popular family of apps for amateur astronomers, and the intermediate version, known as SkySafari Plus, has many features useful to both visual astronomers and astroimagers. If you are already using SkySafari Plus, this workshop will help you maximize your use of all of its features. If you have never used SkySafari, but would like to understand its capabilities before purchasing, this workshop is also for you.

Register [here](#). We need at least 8 registrants in order to hold the workshop. *Attendees under age 18 must be accompanied by a parent or responsible adult.*

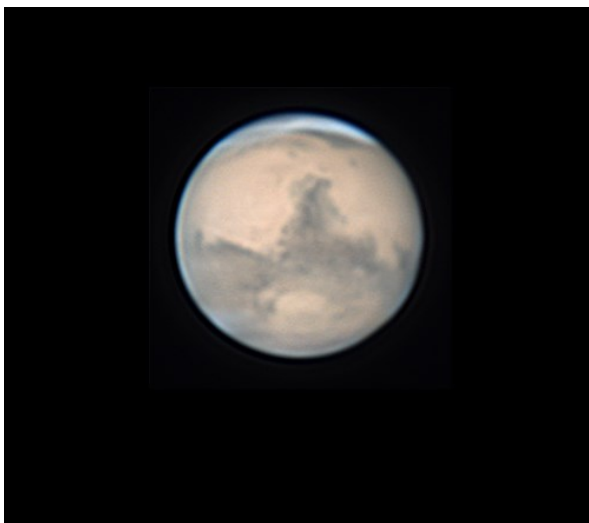
Collimating Your Reflector Telescope

Saturday, February 25, 2023, 3:00 PM until 4:30 PM

If you own a reflector telescope, you need this workshop even if you didn't realize it! Featuring hands-on practice with your own telescope or our demo scopes. Careful collimating ensures that you are enjoying the maximum view that your telescope can deliver!

Register [here](#). We need at least 8 registrants in order to hold the workshop. *Attendees under age 18 must be accompanied by a parent or responsible adult.*

Recent Images by DVAA Members



Mars on December 1st, 2022 when it was at its maximum size of 17.2 arc seconds across. This image was taken through a homemade 10 inch F8.62 reflector with a 3x Barlow, and ZWO ADC using a ZWO ASI462mc color camera.

The Central Meridian on Mars at the time was 290 degrees.

Photo Credit: Tom Nolasco



Triangulum Galaxy M33

This beautiful image was captured with a Celestron Edge HD 8, 0.7x focal reducer with a ZWO ASI 2600MC PRO camera.

36 x 300 sec sub exposures for 3 hours of total exposure. 150 bias and 50 flats were used.

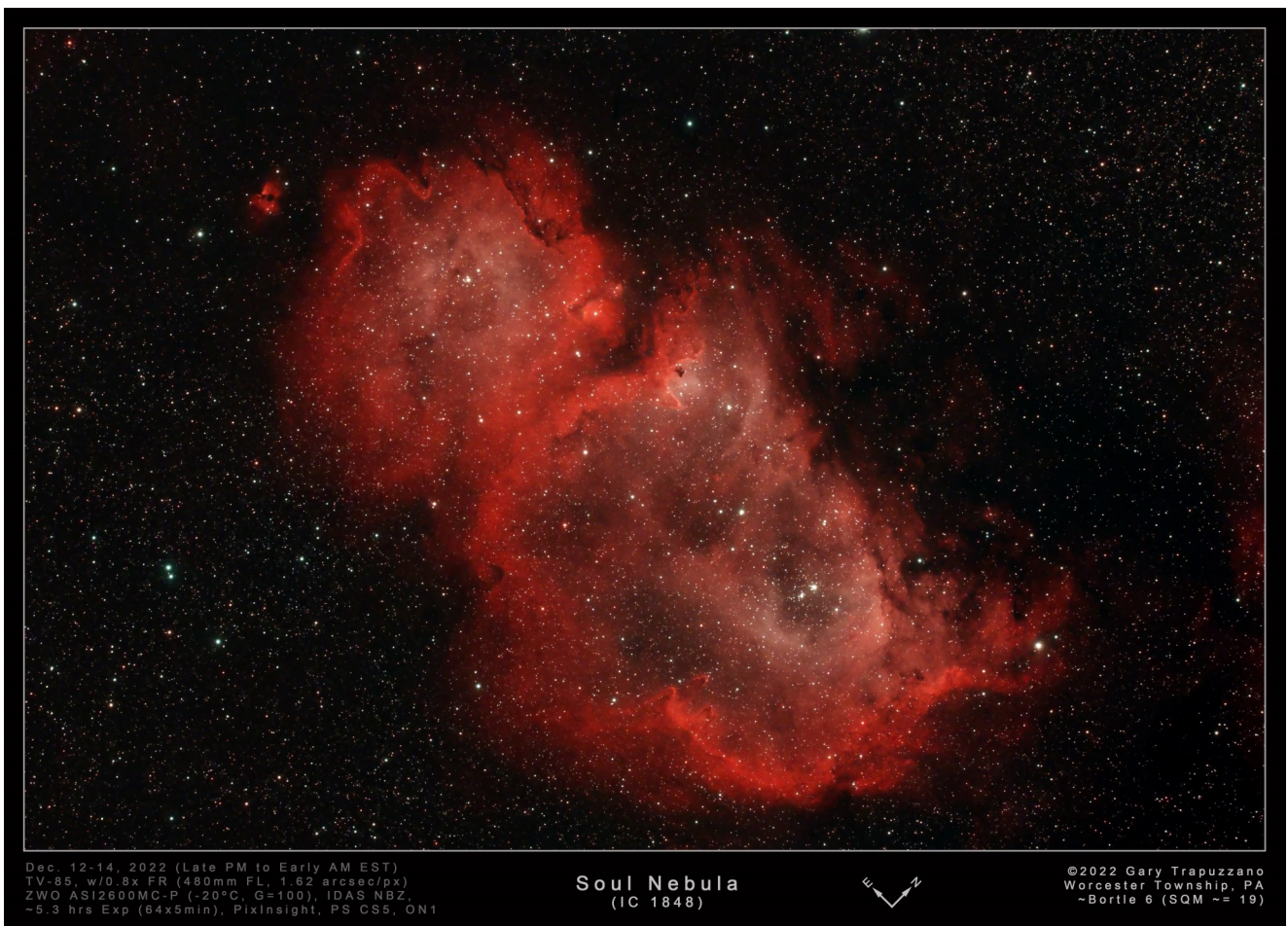
Photo Credit:

Lou Varvarezis



A Geminid meteor can be seen, at lower left, streaking from the bottom of Gemini towards the bright star Betelgeuse just above the tree. It was captured at 9:06 pm on the night of December 13th, 2022 using a ZWO ASI462mc color camera with a fisheye lens. The bright "star" near center is Mars and to the right of Mars is the Pleiades.

Photo Credit: Tom Nolasco



This wonderful image of the Soul Nebula (IC 1848) was taken Dec 12-14, 2022 using a TV-85 with a 0.8x focal reducer. Using a ZWO ASI2600MC-P camera, 64 x 5 min exposures were taken for a total exposure of ~ 5.3 hours.

Photo credit: Gary Trapuzzano



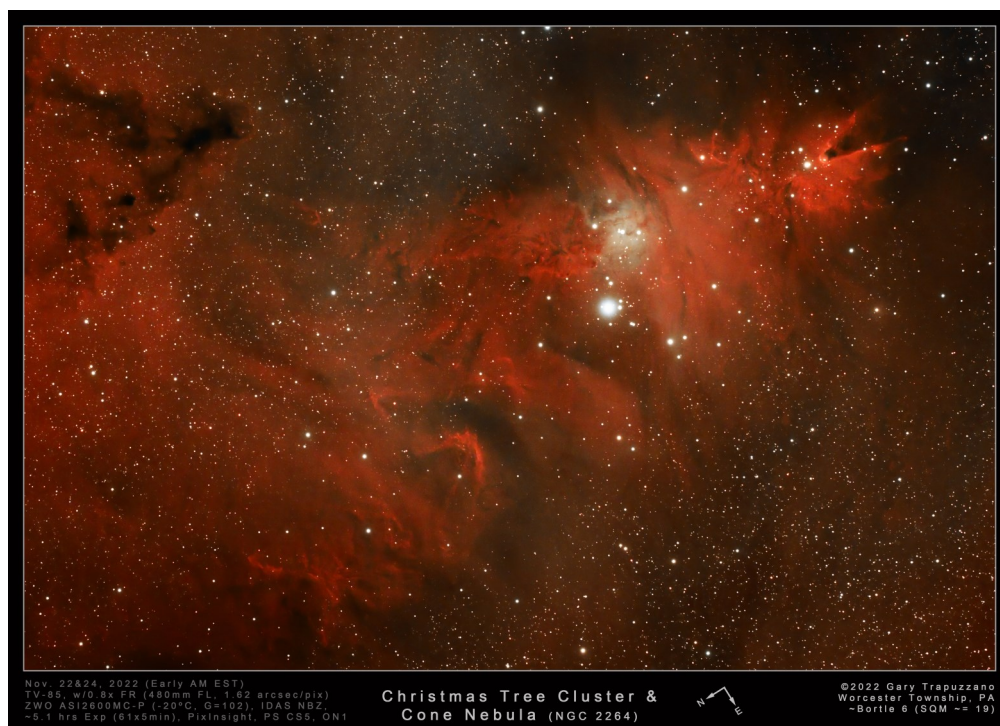
Running Man Nebula Sh2-279

This stunning image was captured with a Celestron Edge HD 8, 0.7x focal reducer ZWO ASI 2600MC PRO camera.

116 x 300 sec sub exposures for 9 hours and 40 minutes of total exposure. 140 bias and 60 flats were used.

Photo Credit:

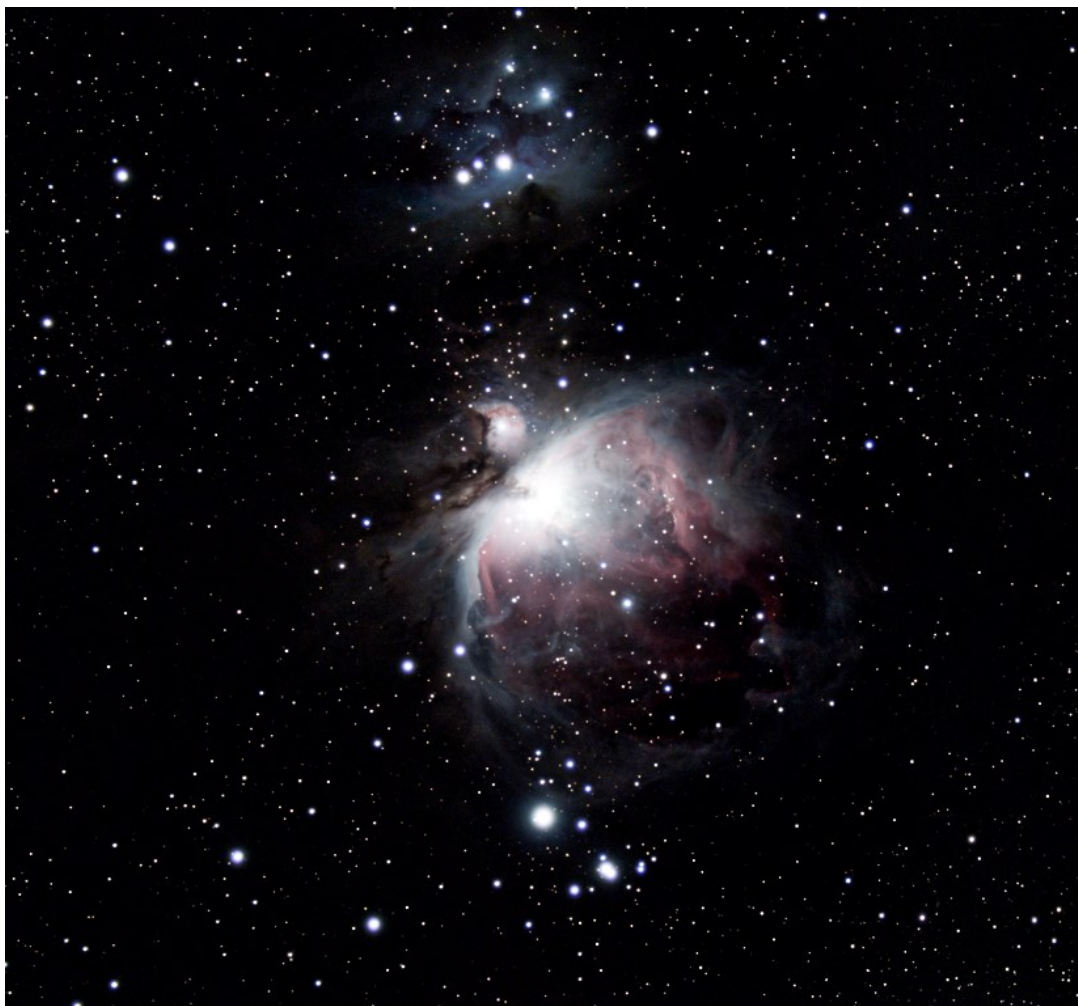
Lou Varvarezis



This amazingly detailed image of the Christmas Tree Cluster & Cone Nebula (NGC 2264) was taken on Nov 22nd & 24th 2022 through a TV-85 with a 0.8x focal reducer. Using a ZWO ASI2600MC-P camera, 61 x 5 min exposures were taken for a total exposure of ~ 5.1 hours.

Photo credit:

Gary Trapuzzano



This really nice image of the Orion and accompanying Running Man nebulae were captured with an f/4.5 Sharpstar 61EDPH II. Using a ZWO ASI183mc camera and ASlair Plus, 144 x 20 second subs were taken for a total exposure of 48 minutes.

Photo credit:

Steve Haas

If you would like to participate in DVAA's active astrophotography community, visit the [Astrophotography Resource Page](#) on the DVAA website.



One for the Spouses

For somewhat over one month, I have been trying to sell my 22" Obsession telescope. With over 1600 hits on Astromart and over 880 hits on Cloudy Nights, interest certainly was there. The first two very serious inquiries were nixed by their spouses. A third serious inquiry resulted in a deposit by an enthusiastic couple from D.C. They have access to a dark sky site and a friend's observatory in VA.

Thinking about this series of events made me appreciate the fact that all the DVAA spouses and partners are extremely supportive and encouraging of the astronomical pursuits happening in their household. We should seriously consider raising a glass (suggest Asti Spumante or Prosecco) this Holiday season in thanks and appreciation for their past and continued support.

Al Lamperti



Spot the Messenger: Observe Mercury

David Prosper



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!

Most planets are easy to spot in the night sky, but have you spotted Mercury? Nicknamed *the Messenger* for its speed across the sky, Mercury is also the closest planet to the Sun. Its swift movements close to our Sun accorded it special importance to ancient observers, while also making detailed study difficult. However, recent missions to Mercury have resulted in amazing discoveries, with more to come.

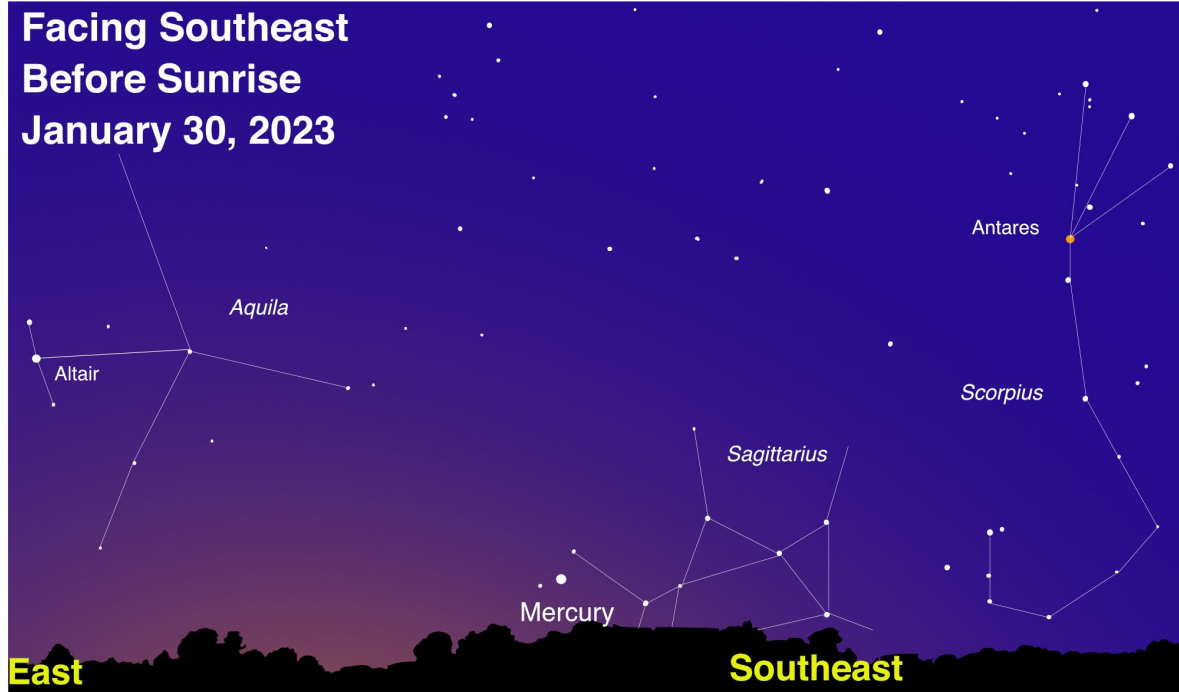
Mercury can be one of the brightest planets in the sky – but also easy to miss! Why is that? Since it orbits so close to the Sun, observing Mercury is trickier than the rest of the “bright planets” in our solar system: Venus, Mars, Jupiter, and Saturn. Mercury always appears near our Sun from our Earth-bound point of view, making it easy to miss in the glare of the Sun or behind small obstructions along the horizon. That’s why prime Mercury viewing happens either right before sunrise or right after sunset; when the Sun is blocked by the horizon, Mercury’s shine can then briefly pierce the glow of twilight. Mercury often appears similar to a “tiny Moon” in a telescope since, like fellow inner planet Venus, it shows distinct phases when viewed from Earth! Mercury’s small size means a telescope is needed to observe its phases since they can’t be discerned with your unaided eye. Safety warning: If you want to observe Mercury with your telescope during daytime or before sunrise, **be extremely careful**: you don’t want the Sun to accidentally enter your telescope’s field of view. As you may already well understand, this is extremely dangerous and can not only destroy your equipment, but permanently blind you as well! That risk is why NASA does not allow space telescopes like Hubble or the JWST to view Mercury or other objects close to the Sun, since even the tiniest error could destroy billions of dollars of irreplaceable equipment.

Despite being a small and seemingly barren world, Mercury is full of interesting features. It’s one of the four

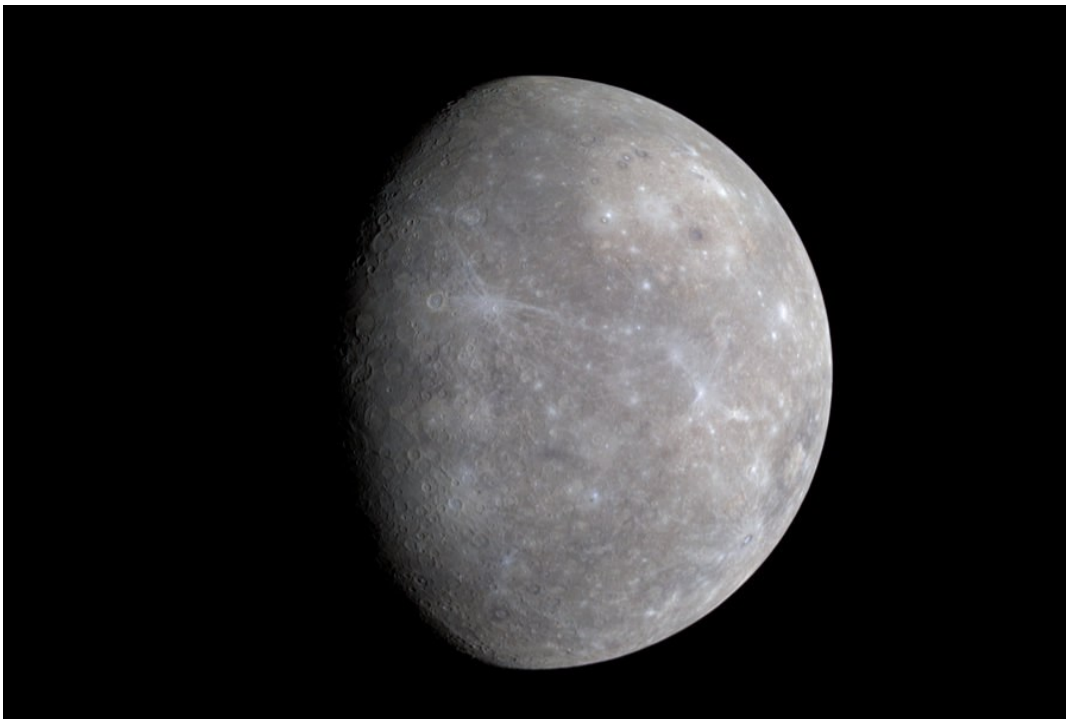
rocky (or terrestrial) planets in our solar system, along with Earth, Venus, and Mars. Mercury is the smallest planet in our solar system and also possesses the most eccentric, or non-circular, orbit of any planet as well: during a Mercurian year of 88 Earth days, the planet orbits between 29 million and 43 million miles from our Sun – a 14-million-mile difference! Surprisingly, Mercury is **not** the hottest planet in our solar system, despite being closest to the Sun; that honor goes to Venus, courtesy its thick greenhouse shroud of carbon dioxide. Since Mercury lacks a substantial atmosphere and the insulating properties a layer of thick air brings to a planet, its temperature swings wildly between a daytime temperature of 800 degrees Fahrenheit (427 degrees Celsius) and -290 degrees Fahrenheit (-179 degrees Celsius) at night. Similar to our Moon, evidence of water ice is present at Mercury’s poles, possibly hiding in the frigid permanent shadows cast inside a few craters. Evidence for ice on Mercury was first detected by radar observations from Earth, and followup observations from NASA’s MESSENGER mission added additional strong evidence for its presence. Mercury sports a comet-like tail made primarily of sodium which has been photographed by skilled astrophotographers. The tail results from neutral atoms in its thin atmosphere being pushed away from Mercury by pressure from the nearby Sun’s radiation.

NASA’s Mariner 10 was Mercury’s first robotic explorer, flying by three times between 1974-1975. Decades later, NASA’s MESSENGER first visited Mercury in 2008, flying by three times before settling into an orbit in 2011. MESSENGER thoroughly studied and mapped the planet before smashing into Mercury at mission’s end in 2015. Since MESSENGER, Mercury was briefly visited by BepiColombo, a joint ESA/JAXA probe, which first flew by in 2021 and is expected to enter orbit in 2025 - after completing six flybys. Need more Mercury in your life? Check out NASA’s discoveries and science about Mercury at solarsystem.nasa.gov/mercury/, and visit the rest of the universe at nasa.gov.

Spot the Messenger: Observe Mercury (cont.)



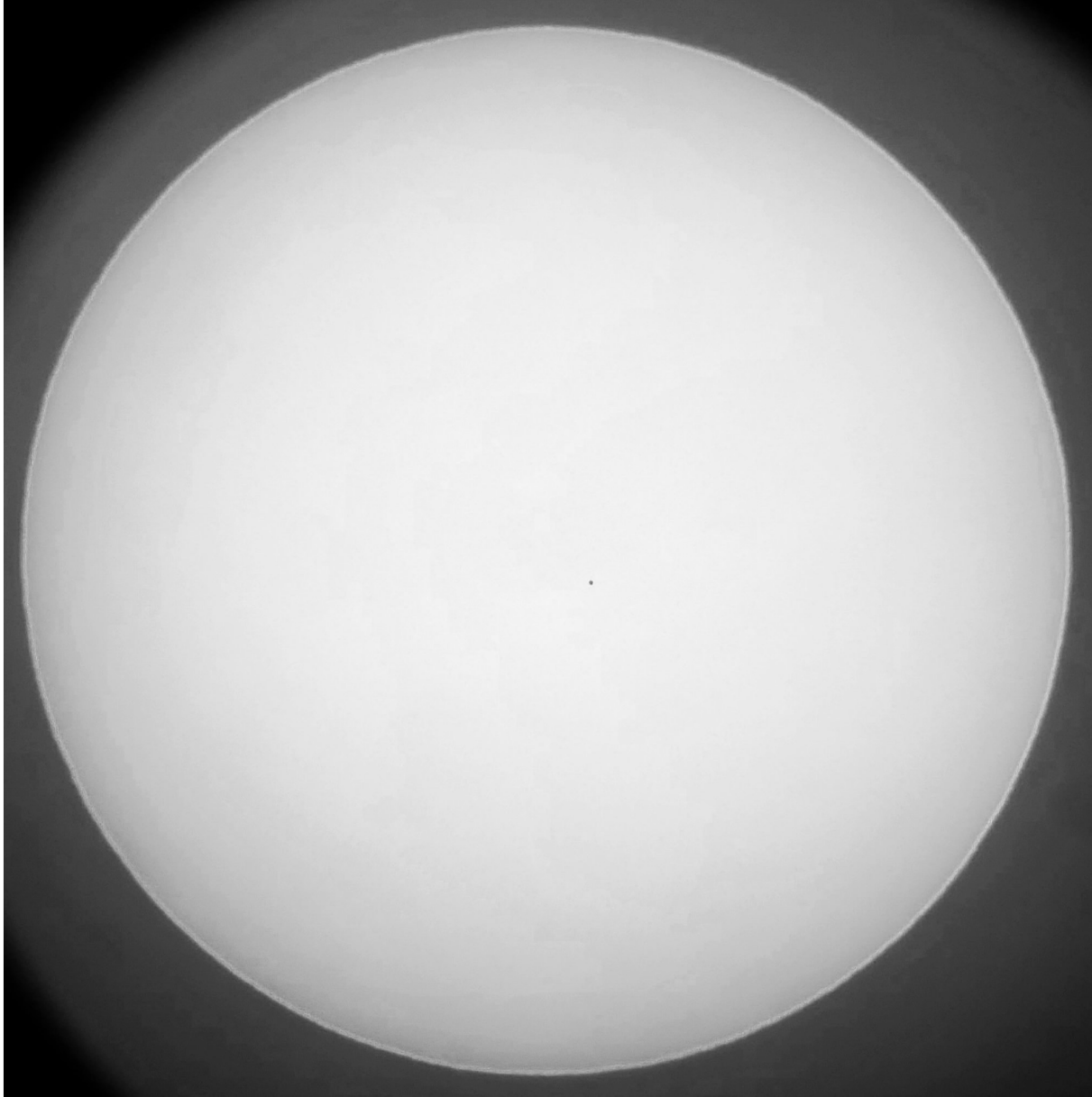
Mercury reaches maximum western elongation on the morning of January 30, which means that your best chance to spot it is right before sunrise that day! Look for Mercury towards the southeast and find the clearest horizon you can. Observers located in more southern latitudes of the Northern Hemisphere have an advantage when observing Mercury as it will be a bit higher in the sky from their location, but it's worth a try no matter where you live. Binoculars will help pick out Mercury's elusive light from the pre-dawn glow of the Sun. Image created with assistance from Stellarium



Mercury is hot, small, and heavily cratered across its gray surface, as seen in this image from NASA MESSENGER. Mercury is the most heavily cratered planet in our solar system, since it lacks either a substantial atmosphere or geologic activity to erode surface features like craters - similar in certain aspects to the surface of our own Moon.

Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Carnegie Source: <https://solarsystem.nasa.gov/resources/439/mercurys-subtle-colors/>

Spot the Messenger: Observe Mercury (cont.)



On rare occasion, Earthbound observers can observe Mercury, like Venus, transiting the Sun. Mercury frequently travels between Earth and the Sun, but only rarely does the geometry of all three bodies line up to allow observers from Earth to view Mercury's tiny shadow as it crosses our star's massive disc. You can see one such event in this photo taken by Laurie Ansorge of the Westminster Astronomical Society on November 11, 2019. If you missed it, set a reminder for Mercury's next transit: November 13, 2032.

Save the Date

Thursday, March 16th @ 7:00 pm



DVAA Night at the Mallon Planetarium

Planetarium Director and DVAA member Adam Chantry presents a show just for the DVAA

"Moons: Worlds of Mystery" - about Earth's moon and the fascinating moons of our planets

Arcola Intermediate School, Eagleville, PA (Methacton School District)

Spitz Sci-Dome HD with ATM-4 Automation, Spitz Full Dome Player, Starry Night Planetarium Software, Layered Earth Geology

No entrance fee; donations will be accepted to benefit the DVAA. Register at www.dvaa.org

Want to help with this newsletter?

We are looking for additional people interested in serving on the editorial board for the **award-winning Delaware Valley Amateur Astronomer**.

Generally this would involve being the "lead editor" for approximately two issues per year. (You choose which months!) For the rest of the year, you provide advice/feedback to the lead editor for that month. Editing is done in Microsoft Publisher (the Club will get you a copy if you don't have one!), which is similar to Microsoft Word but has some additional features.

All distribution is through the club website (no printing / folding / mailing / licking stamps)!

If interested, contact us at newsletter@dvaa.org!

Methacton SCHOOL DISTRICT

PRESENTS:

Mallon Planetarium Community Shows



Wednesday, January 11th

5:30 - Celestial Highlights & Faster Than Light (4th Grade through Adult)

7:00 - Celestial Highlights & Calendars & How We Keep Track of Time (6th Grade through Adult)

Wednesday, February 15th

5:30 - Celestial Highlights & Follow The Drinking Gourd (3rd Grade through Adult)

7:00 - Celestial Highlights & We Are Stars (4th Grade through Adult)

February 17th - 25th

Laser Light Shows Return to the Mallon Planetarium. Dark Side of the Moon 50th Anniversary

www.methacton.org/laser for details

Wednesday, March 15th

5:30 - Celestial Highlights & The Little Star That Could (Pre-K through 3rd Grade)

7:00 - Celestial Highlights & Preparing for Solar Eclipse 2024 (4th Grade through Adult)

Saturday April 29th

Free Community Star Party

Visit Planetarium Web Site for Details: www.methacton.org/planetarium

www.methacton.org/Planettix for Tickets

Adults: \$8

Children/Students/Seniors: \$6

**Arcola Intermediate School
4001 Eagleville Road
Eagleville, PA 19403**

[Click Here to Purchase Tickets](#)

DVAA Telescope Rentals

Celestron NexStar 5SE



Orion 6" Dossonian



DayStar 60mm Solar Scope



Ioptron Tracker



Orion 6" StarBlast Dobsonian



All scopes include tripod/base, eyepieces, manuals, power, etc. Rental is \$10/month with \$20 deposit. More info at www.dvaa.org under the OBSERVING tab. To rent one of these scopes, contact Joe Lamb at rentals@dvaa.org.

The Delaware Valley Amateur Astronomers

Since 1976, the DVAA, a non-profit corporation, has **shared the wonder and science of astronomy** with thousands of amateur astronomers and the public in the Philadelphia area. Each month we host dark-sky and local star parties, telescope workshops, science & astronomy lectures, educational outreach sessions, and more. To learn more or to join DVAA, please visit www.dvaa.org.

Check the schedule for our **free monthly meetings open to the public**, now returning to face-to-face meetings in Radnor, and available on [YouTube](https://www.youtube.com).

**get in on the fun:
JOIN the DVAA TODAY!**

Dues are \$40 per year for an individual, \$60 for a Family Membership, or \$10 for a Junior or Student Membership. **Membership benefits** include our monthly newsletter, membership in the Astronomical League (including its publications), access to our dark-sky observing sites, and inexpensive rentals of fine telescopes. You can join or renew online at www.dvaa.org. If paying by mail, include a note stating what you are paying and membership category desired. Make checks payable to "DVAA" and send to our treasurer: Scott Vanaman 327 Laurel Drive, Collegeville, PA 19426 or for more information contact treasurer@dvaa.org.

