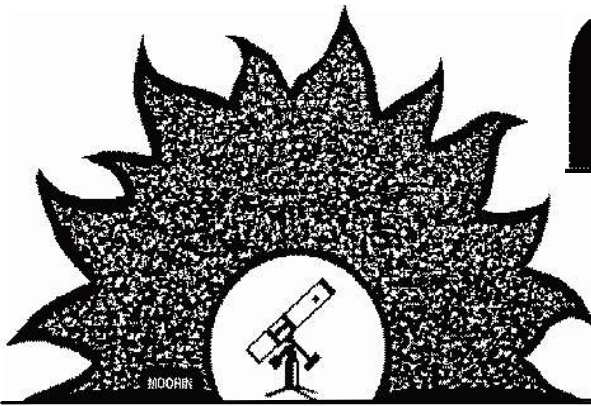




PAStimes

Phoenix Astronomical Society

www.pasaz.org

January 2023

Volume 74 Issue 5

PHOENIX ASTRONOMICAL SOCIETY — ESTABLISHED 1948

ROGIER WINDHORST TO SPEAK AT JAN 19TH MEETING

**The Infrared Universe Beyond Hubble:
The James Webb Space Telescope!**

Rogier Windhorst is a returning and fantastic Guest Speaker of PAS! He is a JWST Interdisciplinary Scientist based out of ASU. PAS would like you to join us in welcoming him to the January PAS Meeting. His presentation will be done through Zoom, but you may attend in person at the PAS Meeting at PVCC Main Campus in the Life Sciences building in room 205 7pm to 10pm. Or join the presentation on Zoom with this link: <https://us02web.zoom.us/j/81193628193?pwd=NIBZN2IU204VnVySk5SZXhtZWc2UT09>. For more info about his upcoming presentation, visit: https://www.asu.edu/clas/hst/www/jwst/jwsttalks/aerobicsforthemind_jwst_nov22.pdf.

JANUARY 19TH PAS MEETING

By Terri, Event Manager

The January meeting will have Rogier Windhorst attending via Zoom. He will not be in person at this meeting but we will still have the option to gather in person, if you wish, for this meeting at PVCC. We'd love to have you attend and enjoy this fantastic Guest Speaker, returning to us after a few previous presentations, including January 14, 2021, and you can find this presentation recording at this link: <https://www.pasaz.org/pas-monthly-meetings/videos-of-speaker-presentations>. See you there!

Since the Guest Speaker is not doing his presentation in person, there will be no PAS Meet & Eat Dinner prior to this meeting. Watch for the announcement of future Dinners Before the Meetings.



ROGIER WINDHORST IS A MARVELOUS GUEST SPEAKER. PLEASE JOIN US IN WELCOMING HIM TO THIS MEETING THROUGH ZOOM. PHOTO PROVIDED BY ROGIER.

“NEW VISIONS, NEW VOYAGES: PLANETARY EXPLORATION IN THE NEXT DECADE 2023-2032”

A lecture by Dr. David Williams

Review by Stu Brackney, President PAS

Question: Have you ever gone on a long trip to far off places? Do you remember the amount of planning you had to do? Do you remember last minute changes? If you can, then this lecture was for you, and still is, as it was recorded and can be found on our website under Monthly Meetings: <https://www.pasaz.org/pas-monthly-meetings/videos-of-speaker-presentations>.

Dr. Williams shared the story of world-famous scientists meeting for over three years, discussing possible ideas, developing strategic goals, and then preparing a final proposal for NASA. This

proposal is a detailed list of future missions for NASA in the next decade. He described the process of establishing priorities, projected costs, and time schedules. The result of this three-year planning group is the Astrobiology and Planetary Science Decadal Survey, titled “Origins, Worlds, and Life.”

Dr. Williams’ PowerPoint slide presentation enhanced our understanding of what kind of preparation is required before any mission arrives at the lift-off stage. If you are a fan of space exploration, then this lecture is for you. Trips back to the moon, then Mars and other missions to our neighbors like Jupiter and some of its moons are described. View this lecture on our website, left column under meetings, click

See “New Visions, New Voyages” on page 3.



DR. DAVID WILLIAMS HAS BEEN COMING TO PAS WITH A LOT OF INFORMATION TO SHARE ABOUT SPACE EXPLORATION, PAST AND PRESENT. THIS WAS ANOTHER FANTASTIC PRESENTATION DONE BY DR. WILLIAMS. PHOTO PROVIDED BY DR. WILLIAMS.

President	Stu Brackney	480-221-5711	President@pasaz.org
Vice President	Paul Facuna	602-246-1554	VicePresident@pasaz.org
Webmaster	Pete Turner		Webmaster@pasaz.org
Acting Secretary	Stu Brackney	602 789-6556	Secretary@pasaz.org
Treasurer	Richard Sauerbrun		Treasurer@pasaz.org
Event Manager	Terri Finch	602-561-5398	Events@pasaz.org
Membership Manager	Joe Sandy		Membership@pasaz.org
Newsletter Editor	Don K. Boyd		Editor@pasaz.org
PAS Host			
Member at Large	Jenny Hall	602-787-6818	
Member at Large/Equipment Manager	Bruce Wurst	602-909-8024	mall@pasaz.org
Phoenix Astronomical Society 3241 E Shea Blvd #249 Phoenix AZ 85028-3365			

PAST PAS RECORDED PROGRAMS

By Terri Finch, Event Manager

Did you miss a PAS Meeting and wish you could see it? You can get to the link of Past Recorded PAS Meetings with Guest Speakers any time by going to the left hand navigation tool on the PASaz.org website and clicking on "PAS Monthly Meetings." From there a drop down item will appear and please click on "Videos of Speaker Presentations." You will then find recordings of Past PAS Meetings for your viewing pleasure. The collection is in oldest to newest order. Please work your way to the bottom of the collection to find the most recently recorded PAS Guest Speaker Presentation.

As long as PAS can record the PAS Meetings, PAS will continue to add more recordings to this page. Here is the direct link to the recorded PAS Meetings collection: <https://www.pasaz.org/pas-monthly-meetings/videos-of-speaker-presentations>. Enjoy!

TABLE OF CONTENTS

- | | |
|---|---|
| 1 "New Visions, New Voyages—
December Meeting Review | 6 Spot the Messenger: Observe
Mercury |
| 1 Rogier Windhorst to Speak at Jan
19th Meeting | 7 PAS Membership Dues To
Increase By \$5 |
| 2 What's Up For January | 7 Be Part of the PAS Team |
| 2 Moons of January | 7 Thanks to Bob Ewing, PAS
Meeting Host |
| 2 Past PAS Recorded programs | 8 Newsletter Submission Deadline |
| 2 Table of Contents | 8 PAS Seeks Meeting Host &
Secretary |
| 2 Phoenix Astronomical Society
Contact Info | 8 Astronomy Equipment for Sale |
| 3 2023 PAS Guest Speakers at
Hybrid Meetings | 9 Binoculars: A Great First
Telescope |
| 3 Public Star Party Jan 28th | 10 January 22nd Viewing Challenge |
| 3 PVCC Campus Map | 11 Navigating the January Night
Sky |
| 4 Meet Your Board Members | 12 Solar Eclipse Oct 25 from Israel |
| 4 Stu's Views: President's Corner
January 2023 | 13 Benchmark School Nov 4 |
| 5 Rosette Nebula | 13 Pardes Jewish School Nov 12 |
| 5 Solar Quest | 14 Telescope Workshop Dec 8 |

WHAT'S UP FOR JANUARY

Name	Date	Rise	Set
Mercury	1-15-23	06:19	16:32
Venus	1-15-23	08:50	19:17
Mars	1-15-23	13:59	04:27
Jupiter	1-15-23	10:59	23:04
Saturn	1-15-22	09:13	19:57
Uranus	1-15-23	12:52	02:27
Neptune	1-15-23	10:33	22:16
Pluto	1-15-23	07:54	17:50

All Times Arizona Time

Bold means the object is "visible" in the evening

PAS is incorporated in the state of Arizona as a non-profit, scientific and educational 501(c)(3) organization. Our newsletter PAStimes is published monthly from September to May and distributed via the Internet. All Issues are available for download on our website www.pasaz.org. Ads for astronomy equipment are provided as a courtesy to sellers and buyers, and do not constitute any endorsement by PAS. All Photos by Don Boyd unless otherwise credited. All articles and photos are copyright their authors or PAStimes.

JANUARY 15, 2022

Sunrise: 07:33

Sunset: 17:44

Full: January 6

Q3: January 14

New: January 21

Q1: January 28





2023 PAS GUEST SPEAKERS AT HYBRID MEETINGS

By Terri Finch, Event Manager - Events@pasaz.org

All PAS Meetings with a Guest Speaker held at PVCC can be attended in-person as well as via Zoom at the same time in a hybrid meeting. Those of you wishing to attend the meeting in person, please meet in LS-205 at PVCC Main Campus (map to the left of this article). If you wish to watch the meeting via Zoom, that option is available. For the 2022-2023 school year, PAS is using the same Zoom Meeting Link: <https://us02web.zoom.us/j/81193628193?pwd=NIBZN2IU204VnVySk5SZXhtZWc2UT09> Please visit the PAS calendar at www.PASaz.org to find out more about these upcoming meetings and guest speakers. For a complete list of guest speakers visit: <https://docs.google.com/document/d/1OO-UPaYNvW3p7JCRXCKSjDcbsK60DnvW0oifbqPrNp8/edit?usp=sharing>

Do you have an idea for a guest speaker? Email the details and contact info for the possible guest speaker to Paul Facuna at VicePresident@pasaz.org.

Here are the next scheduled guest speakers at PAS:

Feb 2: Dr. Alex Vrenios, "The Astronomical League"

Mar 2: Tom Klare "Photographing Stars Using a Digital Camera"

Apr 6: Mark Johnston "My Journey in Astronomy Outreach"

Continued from page 1

NEW VISIONS, NEW VOYAGES

"Videos of Speaker Presentations."

No stranger to PAS, Dr. Williams has gifted us with previous visits and lectures on the cosmos.

He is a Research Professor in the School of Earth and Space Exploration at Arizona State University, Tempe, Arizona. Dr. Williams is the Director of the Ronald Greeley Center for Planetary Studies, the NASA planetary data center at ASU. He is also the Director of the NASA Planetary Aeolian Laboratory, which administers wind tunnels at the Ames Research Center in California. David is currently performing research in volcanology and planetary geology, with a focus on planetary mapping, geochemical, and remote sensing studies. And he is a friend and welcome Guest Speaker to PAS!

By Terri, Event Manager

This month, PAS decided to go back to the way things were before the Pandemic came to town. We met at Chili's on 7th Street and Bell and enjoyed a MEET & EAT dinner before the PAS Meeting with Guest Speaker Dr. Dave Williams and his wife Kim. We had seven in attendance for this first Meet & Eat Dinner: William and Terri Finch, Dr. Dave and Dr. Kimberly Smith, Mike Marron, Joe Sandy, and Cheryl White. It was a wonderful dinner, not rushed, and Chili's got us served and out on time to make it to the meeting. Many thanks to everyone who attended.

At the meeting, PAS held its first back to normal PAS Swap Meet. Although there weren't many items for sale this

year, there was a sale. Items were purchased and I hope all involved got what they wanted. Looking forward to planning next year's December PAS Swap Meet with a little more time to make it happen. This was a last minute decision. Hope to see you at the next Swap Meet.

In the classroom, LS-205, we had about twelve attendees. Dr. Dave handed out his posters to those who attended. The meeting went very smoothly and Dr. Dave made a marvelous presentation on the next 10 years of Space Exploration and how it is decided, what is decided, and how the public can help make it happen. Very well done! Looking forward to Dr. Dave's return to PAS possibly in December 2023.

PUBLIC STAR PARTY JAN 28TH

Saturday January 28th, weather permitting, PAS is hosting a public star party in Carefree. Sunset is at 5:30pm and it will be dark at 7pm. A potluck will be held at 5pm, telescopes will be set up at 6pm, and the star party will begin at 7pm.

To RSVP you must email Terri at

Events@pasaz.org by the day before Jan 28th. Please park at the front of the house if you are not bringing a telescope to set up. The address and directions will be provided when you RSVP. As there will be a large crowd of vehicles, please park with other cars in mind to fit as many as

we can in the driveway. In your RSVP please indicate the total number of guests in your party, if you are bringing a telescope to set up, and your approximate arrival time. It is important to arrive before sunset for the star party.

STU'S VIEWS: PRESIDENT'S CORNER JANUARY 2023



Happy New Year everyone. Your organization is moving forward and looking to have a fabulous 2023. Here are some recent highlights of 2022. We now have one hundred members. That is a 25% increase since last year! Our lecture series is generating lots of interest with increased attendance like never before. Our Telescope Workshops are loaded with new people learning about astronomy equipment from binoculars to high powered astrophotography telescopes. PAS members are the volunteer

instructors for these workshops. The PAStimes Newsletter (located on our website: <https://www.pasaz.org/newsletters>) is chock full of stories about our activities and of course updates of NASA missions. Our Facebook page is attracting increased attention by viewers far and wide. We are working with Paradise Valley Community College Foundation to re-institute

our annual student scholarship, "Phoenix Astronomical Society/Sam Insana Memorial Scholarship" that honors the memory of Sam Insana, a member of PAS for over 30 years before he passed away in 2020. Finally, we are closing in on re-establishing people-to-people star parties. We are looking for feasible sites to use for these Star Parties. Any ideas? Please contact me. Wow, looks like we truly are on the move.

The recent updates to our website now allow people to not only join our

organization online at <https://www.pasaz.org/join-our-club> but will soon allow people to donate to us online. Friendly reminder: PAS is a non-profit organization as determined by the IRS thus we are a 501 C 3 organization. Our organization was established in 1948. Your Board of Directors has been reviewing our somewhat outdated by-laws. Soon you will be hearing about proposed revisions to our by-laws for you, the membership, to vote on. As usual, I remind you of our needs. We are looking for:

An Events Manager, and a Secretary. If you are interested and want to learn more about these two positions, contact me: Stuartbrackney@pasaz.org.

Finally, our next series lecture is January 19, 2023, at 7:00 p.m. via this Zoom link: <https://us02web.zoom.us/j/81193628193?pwd=NIBZN2IU204VnVySk5SZXhtZWc2UT09> or in-person, in classroom LS-205 at the PVCC Main Campus, 32nd St. & Union Hills, Phoenix. See ya there or online. Clear skies everyone! And a Happy New Year to you.

MEET YOUR BOARD MEMBERS

Don Boyd, PAStimes Newsletter Editor

Don Boyd is the Editor of the PAS newsletter "PAStimes" published monthly on the PAS website. Get ready folks...he's a native Arizonan. Yep, born in Phoenix and as he recalls, Scottsdale back then didn't have a hospital. Raised in Chandler, he completed an Associate Degree in Electronics Engineering Technology at Mesa Community College. He was employed for over ten years as an electronics engineer with ITT Courier Terminal Systems. Not one to be focused only on work, Don developed (no pun intended) an interest in photography after a friend introduced him to the process of developing and printing film, thus, he became a photo lab technician.

Don is one of those men who continues to search out new information, so one day he purchased a telescope from Costco. Realizing he needed to learn more about this new-found hobby, he, with a friend, attended a PAS meeting around 2000. He joined that year and has never left. He learned to use his six-inch Celestron with a Meade LXD75 mount but moved on to an eight-inch Astrograph in 2016. Don says he "loves doing star parties, showing off the Pleiades and other beauties in our cosmos." However, recent difficulties with his vision are preventing him from driving, and back issues hinder the transporting of his scopes. But none of this has stopped Don from contributing to our PAS community. Each month he and his newsletter crew provide all of us with tons of delightful and informative interviews and stories. Thanks Don! Your skills are very much appreciated by the PAS membership and board!



DON BOYD, PASTIMES NEWSLETTER EDITOR AND A LONG TIME MEMBER OF PAS. PHOTO TAKEN BY RICHARD SAUERBRUN.

SOLAR QUEST

by Alex Vrenios, PhD

When my neighbor told me that a guy named Van Helsing was asking questions about me, I thought it might be a good idea to cut back on the time I spent observing at night. I've got a really nice Hydrogen-alpha solar scope. Maybe this would be a good time to switch to day shift.

I am one observation short of completing the Astronomical League's H-alpha program, but that particular event doesn't happen very often. Solar activity correlates well with the number of sunspots, which rises and falls over an 11-year cycle. We're just starting the next one now, and it is predicted to peak in 2025. Increased solar activity means there is a higher probability of observing the event I need. Surely this is fate!

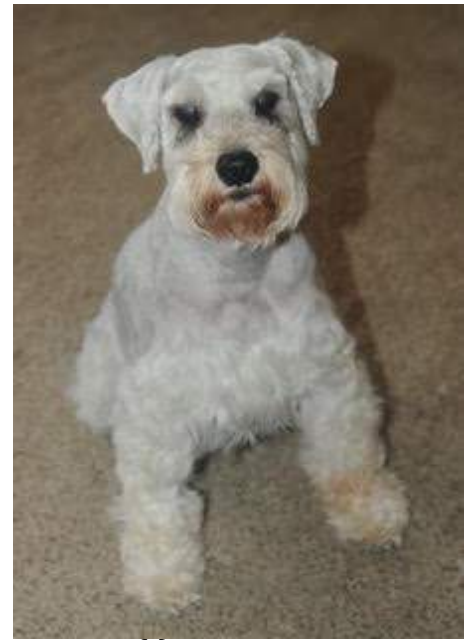
Solar observing is best in mid-morning or mid-afternoon, when the Sun is about 30 degrees above the horizon. I have to twist myself into an uncomfortable position when it's directly overhead. Just to make sure there is something interesting to see up there, I check the Global Oscillation Network Group website for a near real-time H-alpha solar image at http://www.daystarfilters.com/latest_gong_color.jpg.

I have breakfast, finish my morning coffee, and maneuver the solar scope into position on the observing pad. I point the scope a little to the left of the Sun and turn the power switch to ON. The motor drive does a quick search and locks onto the brightest spot in the sky. It will run on

eight AA batteries, but I've got a brick-sized 12V rechargeable battery intended for use in my home alarm system. It may be too weak now to power the alarm, but it's got plenty of juice left to run either of my telescopes.

I settle in at the scope and start the "tuning" process. After focusing it for a sharp outline around the Sun, I adjust the etalon opening inside the scope. When it's tuned just right, only light at the Hydrogen-alpha wavelength is allowed to pass through. White-light solar filters let you see sunspots and granulation on the Sun's surface (the Photosphere). Filaments, plagues, and solar flares, even beyond the solar rim, happen on the Chromosphere, but the Photosphere is so bright that it washes them out. Viewing in H-alpha light lets you bypass the bright light from the Photosphere and see these really interesting features without interference. The GONG website cited above shows these features too, but there's nothing like watching them change slowly, in real-time.

I take a break from the eyepiece for a while and happen to spot one floppy ear, and a little brown eye peeking out at me through the patio door. I let Maggie out and she proceeded to do what she does best, curling up next to me on the warm brickwork.

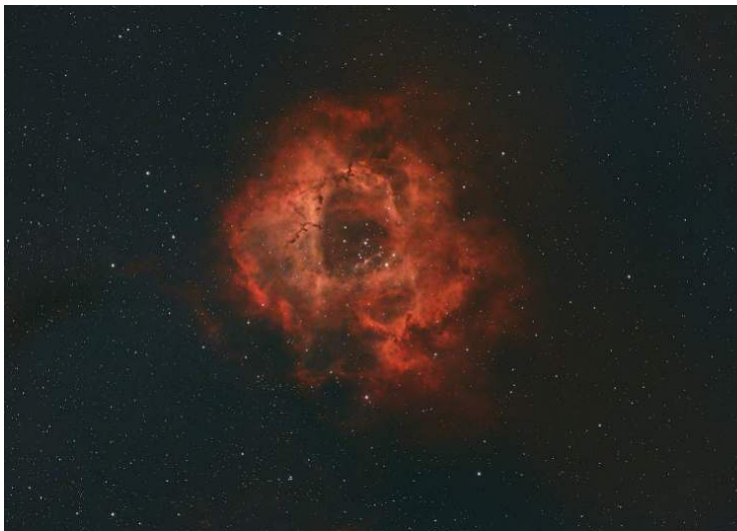


MAGGIE THE DOG.



DR. ALEX VRENIOS. PHOTO PROVIDED BY DR. VRENIOS.

ROSETTE NEBULA



ROSETTE NEBULA BY RICHARD SAUERBRUN.

By Richard Sauerbrun, PAS Treasurer

Here is a shot of NGC2244 - Rosette Nebula I got from my backyard in Scottsdale in early December 2022.

I used:

William Optics RedCat 51 APO 250mm f4.9 telescope

Sky-Watcher GTi equatorial mount

ZWO ASI294MC Pro cooled camera

OptoLong L-eXtreme dual band filter

180 60s guided exposures

Pre and Post processing in PixInsight

Mark Johnson has been tutoring me and some of his skill is rubbing off!



By David Prosper

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.

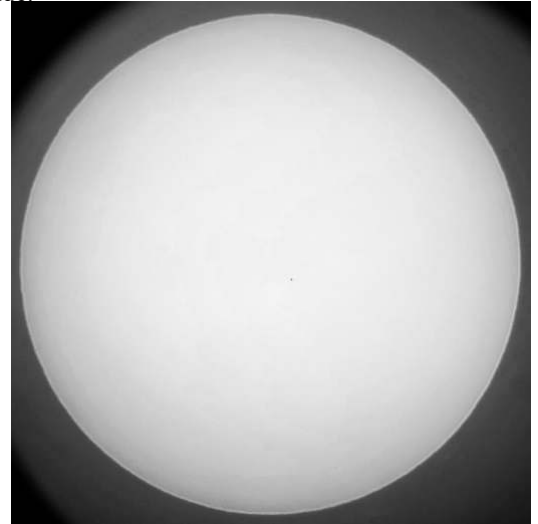
Mercury can be one of the brightest planets in the sky – but also easy to miss! Why is that? Since it orbits so close to the Sun, observing Mercury is trickier than the rest of the “bright planets” in our solar system: Venus, Mars, Jupiter, and Saturn. Mercury always appears near our Sun from our Earth-bound 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.

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!

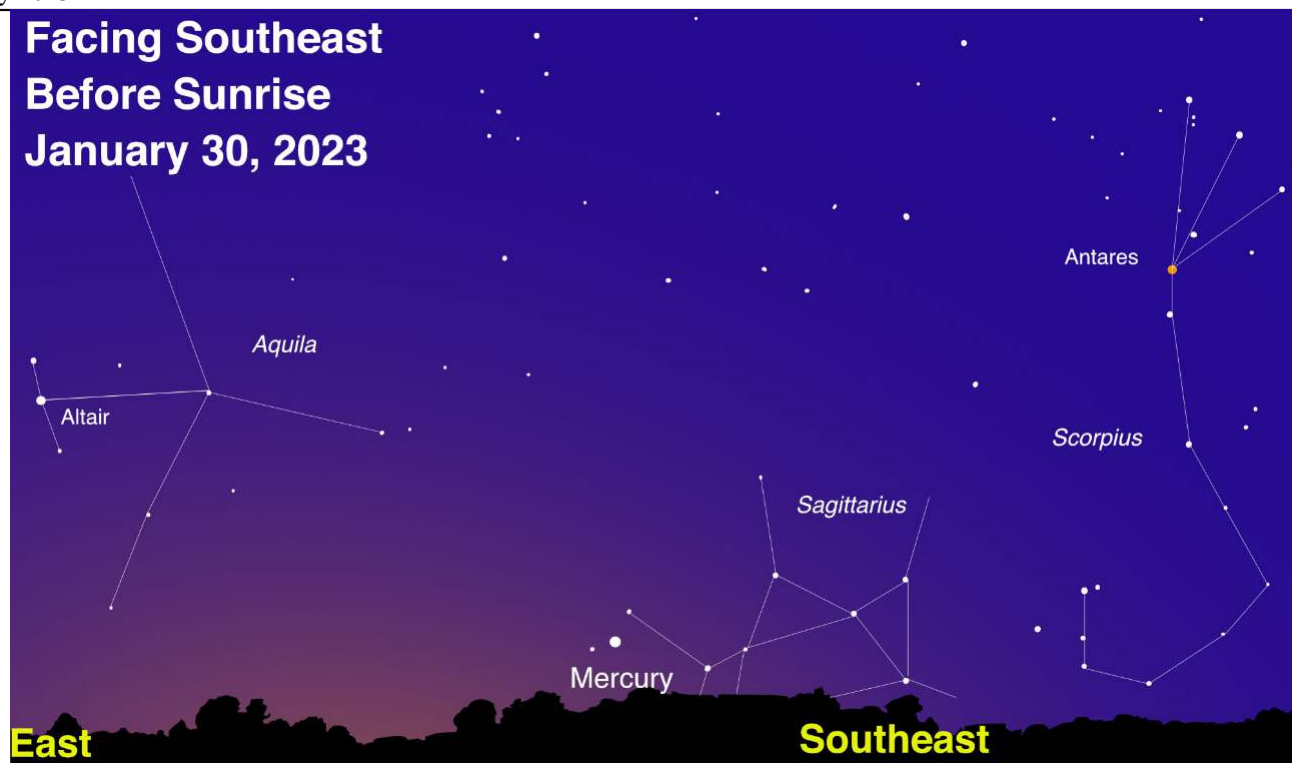


MERCURY REACHES MAXIMUM WESTERN ELONGATION ON THE MORNING OF JANUARY 30, WHICH MEANS THAT YOUR BEST CHANCE TO SPOT IT IS RIGHT BEFORE SUNRISE THAT DAY! LOOK FOR MERCURY TOWARDS THE SOUTHEAST AND FIND THE CLEAREST HORIZON YOU CAN. OBSERVERS LOCATED IN MORE SOUTHERN LATITUDES OF THE NORTHERN HEMISPHERE 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/>

Facing Southeast Before Sunrise January 30, 2023



ON RARE OCCASIONS, 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.

PAS MEMBERSHIP DUES TO INCREASE BY \$5

By Terri, Accounts Receivable

PAS has been lucky enough, at least for the past 10+ years as I recall, not to have to increase the yearly membership dues. But this year, due to inflation and other factors, PAS is raising the membership dues from \$25 to \$30. If you have been able to renew your membership, or you joined before Dec 31, 2022, you were given the membership at \$25. Beginning, January 1, 2023, the membership dues for PAS will be \$30 for

an individual membership.

Every year, membership expires on Dec 31 of that year. It is important to maintain your membership with PAS by renewing as soon as the renewal notice goes out via email, usually at the beginning of September (collecting for the next year).

I wish to thank everyone who has taken care of their membership renewal while the rate was at \$25. We hope to have you continue with PAS for a very long

time.

Now that PAS is returning to the in-person events we had prior to the pandemic, more activities for Members Only are being added to the schedule. Keep an eye on the online calendar for PAS at www.PASaz.org for public events. Members can access the private events through the Microsoft 365 account given to every current PAS Member. PAS appreciates your membership. Hope to see you at the upcoming FUN PAS events!

BE PART OF THE PAS TEAM

By Terri Finch

Every year in May, PAS holds its yearly Officers, Directors & Board Members Elections. The PAS Board is working toward electronic voting for Elected Officials next year. All positions could have new members voted in, and the only stipulation is you must be a current PAS member. I invite anyone who wishes to run for any position within PAS, to

provide an article for the newsletter about yourself and what you plan to do for PAS as that elected official. The elected officials include the President, Vice President, Secretary, Editor, Treasurer, two Members-at-Large, and the PAS Host. The positions that are appointed by the President are the Event Manager and Membership Manager. There is always room for the Editor to appoint more

Newsletter Proofers.

The deadline for your write-up and photos to be sent by email to Editor@pasaz.org is March 15, 2023, to allow time to get them ready to go into the newsletter. Please consider joining the PAS Board of Directors and help to shape the direction PAS takes in the future.

THANKS TO BOB EWING, PAS MEETING HOST

By Terri, Event Manager

Bob Ewing served as PAS Meeting host through Covid-19 and into 2022. He didn't get a chance to really experience the

position, as PAS just started doing in-person meetings again but he served as a listening ear and a voting Board Member at the Board Meetings where PAS makes

all the important decisions. I want to thank him for being available at those meetings and the few meetings he did in person. We will miss Bob as he moves on to other opportunities.

NEWSLETTER SUBMISSIONS DEADLINE 10TH OF THE MONTH

By Terri, Assistant Editor

The 10th of the month, by the end of the day, the month before your submission will be in the newsletter, is the deadline to get all your submissions to the Editors of our club newsletter PAStimes. Here are some ideas of what to send in as submissions to this newsletter:

Did you recently attend a PAS event and would like to share your experience with our readers? Write up a review of any length, including photos and captions (this is optional but if you don't supply me with captions, I will put in my own based on what I see).

Do you have something for sale that is astronomy related? Write up an ad, include contact info, prices you are asking. PAS members get this service for free, but if you are not a PAS member, make a donation to PAS. The ad runs until you sell the item, but you must remind me by the 10th of the month to run your ad in the next newsletter, and you also have until the 10th of the month to update the ad if needed.

Did you catch a photo of something interesting, atmospheric or astronomy related? Send it with a caption. I'm always on the lookout for additional stand alone

photos to fill the newsletter with something interesting. Plus, a picture is worth 1000 words, they say.

I appreciate everyone's submissions. I also enjoy reading the reviews you write about events you have attended, PAS events or other astronomy club or organizations' events, such as if you make a trip to one of the many observatories in the area and you wish to write about it, that's what our newsletter is for...to share your experiences so others will know about the possibilities of where to go to enjoy more astronomy.

PAS SEEKS MEETING HOST & SECRETARY

By Terri Finch, PAS Member

* PAS Secretary Duties: The position of PAS Secretary is available to anyone wishing to volunteer to be the next Secretary of PAS.

What does the Secretary do? The Secretary takes the Minutes of the Meetings, and should be at all PAS Business Meetings (called Meeting of the Minds) and PAS Board Meetings (in-person or via Zoom) to record the minutes of those meetings. The Secretary also makes and sends out the PAS Press Releases to announce upcoming PUBLIC events to the various sources that have been used and collected through the years for promoting these types of events. The Secretary is an Officer Position and has Voting Rights to help make decisions about how PAS, as a club, functions. This

is not a time-intensive position, but it is very necessary to the club and if you wish to be Secretary, please contact President Stu at President@pasaz.org. PAS would appreciate your help.

* PAS Host Duties: The PAS Host is a very laid back position except on the day of the PAS General Meeting with Guest Speaker that happens once a month, September to May. The main thing the PAS Host does is greet everyone when they arrive at the meeting. The Host also gets everyone to sign in with Name, Email, Phone number if they are new to a meeting, or just name if they are a current PAS Member. This list is then given to President Stu, and should be held on to by the PAS Host until the end of the meeting in case anyone arrives late.

If there are handouts to be given, the

Host distributes them to everyone at the meeting. When greeting the attendees of the meeting the Host can tell the new arrival the plans for that night. For example, at the Dec 1st PAS meeting, I played the part of PAS Host due to PAS Not having a Host available. I went from person to person at the in-person meeting and got them to sign in. While doing that, I told each person where to go grab a copy of the awesome poster the guest speaker, Dr. Dave, was giving everyone. I hope everyone I greeted felt welcome to the meeting. That's the purpose of the PAS Host!

Are you thinking of being the next PAS Host? Then please contact Stu at the above email address and let him know you would like to take the position. The Host also has voting rights and is a Board Member.

PLACE YOUR ASTRONOMY EQUIPMENT AD IN THIS NEWSLETTER

Do you have some astronomy-related items you'd like to sell? Prepare an ad and send it my way so that Don and I can help you sell it through the club newsletter. Items you may wish to sell: Books, Star Charts, Telescopes, Eyepieces, Finder Scopes, and more. As long as it is astronomy-related, I will happily add it to the newsletter. Please include all items you wish to sell, and what is included with those items. Price them, and provide contact info for the way you wish to be notified, such as email or phone number. I await your submissions. Send them to Editor@pasaz.org.

Ads for items for sale listed in

PAStimes Newsletter are written by the seller. PAS is not responsible for the ads and does not guarantee the quality of the items for sale. PAS reminds everyone, you purchase at your own risk, so do your research beforehand.

Ads in PAStimes run for one month and may be renewed on a month-to-month basis, space permitting, as long as the request to run the ad again is submitted by deadline (10th of month). Ads in PAStimes are FREE for PAS members. Non-members are asked to make a small donation to PAS. Non-members may email Terri, Assistant Editor at Starstuff@gmail.com to place their ad and

get details on where to send a donation, via check or money order, made out to Phoenix Astronomical Society. Donations can also be sent via Paypal, Credit Card, or Debit Card.

The deadline for the next issue will be the 10th of the month. These items and more can also be seen with photos on the PASaz.org website here: <https://www.pasaz.org/items-for-sale>

Celestron Focus Motor for SCT, EdgeHD & RASA \$175 used, but in excellent working condition. Contact Richard at 480-766-2814 or richard@sauerbrun.com



BINOCULARS: A GREAT FIRST TELESCOPE

By David Prosper

Do you want to peer deeper into the night sky? Are you feeling the urge to buy a telescope? There are so many options for budding astronomers that choosing one can be overwhelming. A first telescope should be easy to use and provide good quality views while being affordable. As it turns out, those requirements make the first telescope of choice for many stargazers something unexpected: a good pair of binoculars!

Binoculars are an excellent first instrument because they are generally easy to use and more versatile than most telescopes. Binoculars can be used for activities like stargazing and birdwatching, and work great in the field at a star party, along the hiking trail, and anywhere else where you can see the sky. Binoculars also travel well, since they easily fit into carry-on luggage – a difficult feat for most telescopes! A good pair of binoculars, ranging in specifications from 7x35 to 10x50, will give you great views of the Moon, large open star clusters like the Pleiades (M45), and, from dark skies, larger bright galaxies like the Andromeda Galaxy (M31) and large nebulae like the Orion Nebula (M42). While you likely won't be able to see Saturn's rings, as you practice your observing skills you may be able to spot Jupiter's moons, along with some globular clusters and fainter nebulae from dark sites, too.

What do the numbers on those binocular specs actually mean? The first number is the magnification, while the second number is the size in millimeters (mm) of the front lenses. So, a 7x35 pair of binoculars means that they will magnify 7 times using lenses 35 mm in diameter. It can be tempting to get the biggest binoculars you can find, but try not to get anything much more powerful than a 10x50 pair at first. Larger binoculars with more power often have narrower fields of vision and are heavier; while technically more powerful, they are also more difficult to hold steadily in your hands and "jiggle" quite a bit unless you buy much more expensive binoculars with image stabilization, or mount them to a tripod.

Would it surprise you that amazing views of some astronomical objects can be found not just from giant telescopes, but also from seemingly humble binoculars? Binoculars are able to show a much larger field of view of the sky compared to most telescopes. For example, most telescopes are unable to keep the entirety of the Pleiades or Andromeda Galaxy entirely inside the view of most eyepieces. Binoculars are also a great investment for more advanced observing, as later on they are useful for hunting down objects to then observe in more detail with a telescope.

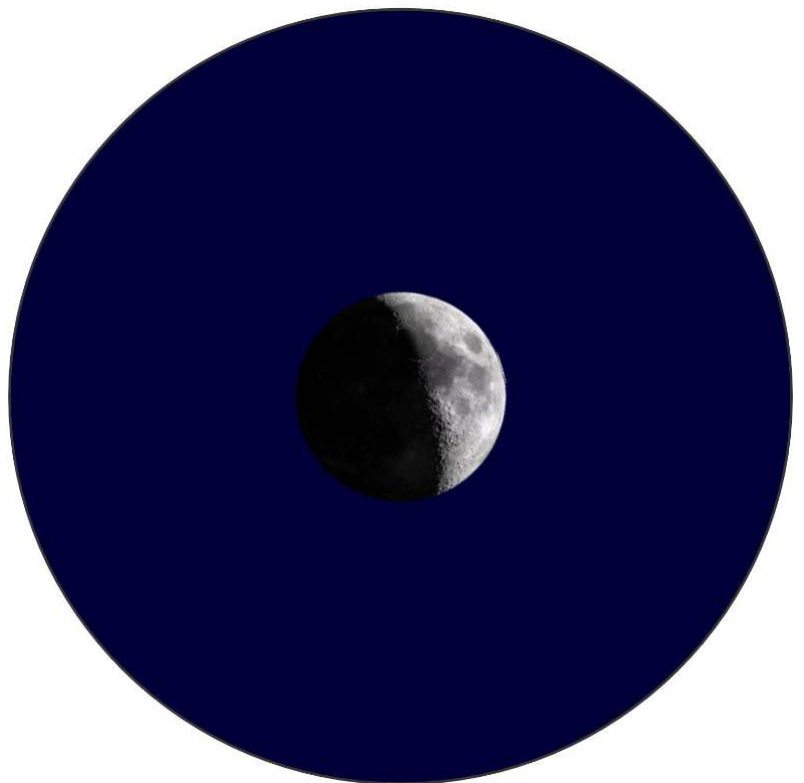
If you are able to do so, real-world advice and experience is still the best for something you will be spending a lot of time with! Going to an in-person star party hosted by a local club is a great way to get familiar with telescopes and binoculars of all kinds – just ask permission before taking a closer look! You can find clubs and star parties near you on the Night Sky Network's Clubs & Events page at

bit.ly/nsnclubsandevents, and inspire your binocular stargazing sessions with NASA's latest discoveries at nasa.gov.



THE TWO MOST POPULAR TYPES OF BINOCULAR DESIGNS ARE SHOWN HERE: ROOF-PRISM BINOCULARS (LEFT) AND PORRO-PRISM BINOCULARS (RIGHT).

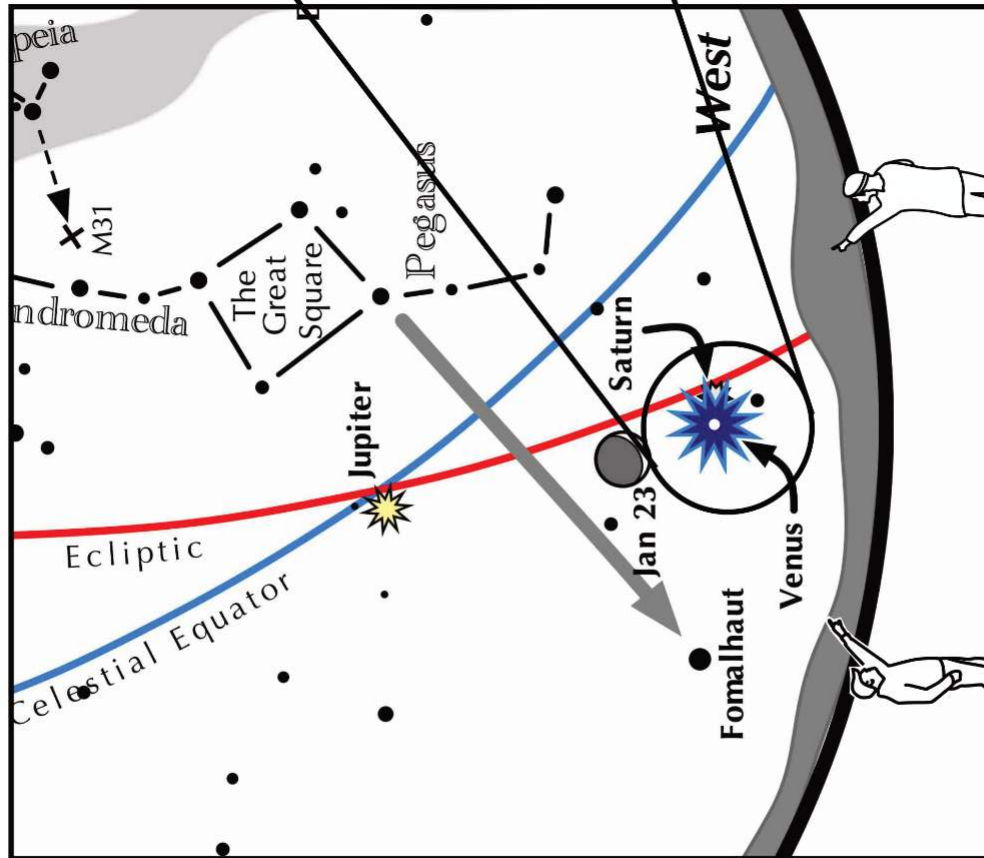
ROOF PRISMS TEND TO BE MORE COMPACT, LIGHTER, AND A BIT MORE PORTABLE, WHILE PORRO-PRISMS TEND TO BE HEAVIER BUT OFTEN OFFER WIDER VIEWS AND GREATER MAGNIFICATION. WHAT SHOULD YOU CHOOSE? MANY BIRDERS AND FREQUENT FLIERS OFTEN CHOOSE ROOF-PRISM MODELS FOR THEIR PORTABILITY. MANY OBSERVERS WHO PREFER TO OBSERVE FAINTER DEEP-SKY OBJECTS OR WHO USE A TRIPOD WITH THEIR OBSERVING CHOOSE LARGER PORRO-PRISM DESIGNS. THERE IS NO RIGHT ANSWER, SO IF YOU CAN, TRY OUT BOTH DESIGNS AND SEE WHICH WORKS BETTER FOR YOU.



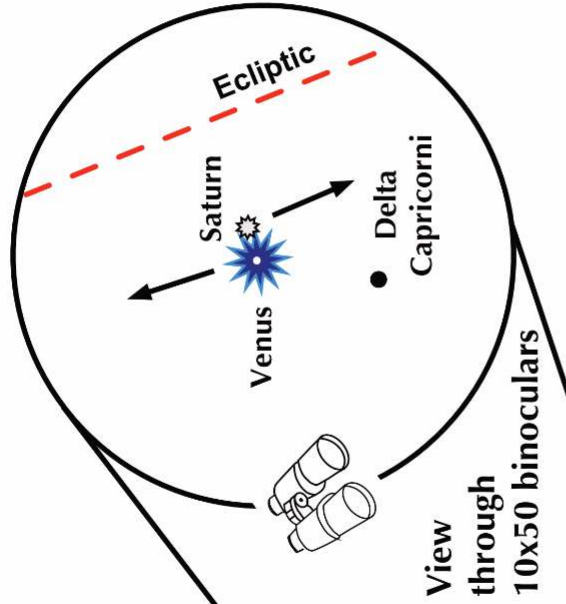
A PAIR OF GOOD BINOCULARS CAN SHOW CRATERS ON THE MOON AROUND 6 MILES (10 KM) ACROSS AND LARGER. HOW LARGE IS THAT? IT WOULD TAKE YOU ABOUT TWO HOURS TO HIKE ACROSS A SIMILAR-SIZED CRATER ON EARTH. THE "CAN YOU SEE THE FLAG ON THE MOON?"

HANDOUT SHOWCASES THE LEVELS OF DETAIL THAT DIFFERENT INSTRUMENTS CAN TYPICALLY OBSERVE ON THE MOON, AVAILABLE AT [BIT.LY/FLAGMOON](https://bit.ly/flagmoon). MOON IMAGE COURTESY JAY TANNER.

In the early evening of January 22, try this challenge:



View to the west-southwest
on January 22
45 minutes after sunset



Venus meets Saturn

On January 1, Venus appears very low above the west-southwestern horizon. As the month proceeds, the bright planet climbs higher each evening. Saturn, on the otherhand, begins the month much higher than Venus, and drops closer to the horizon each evening.

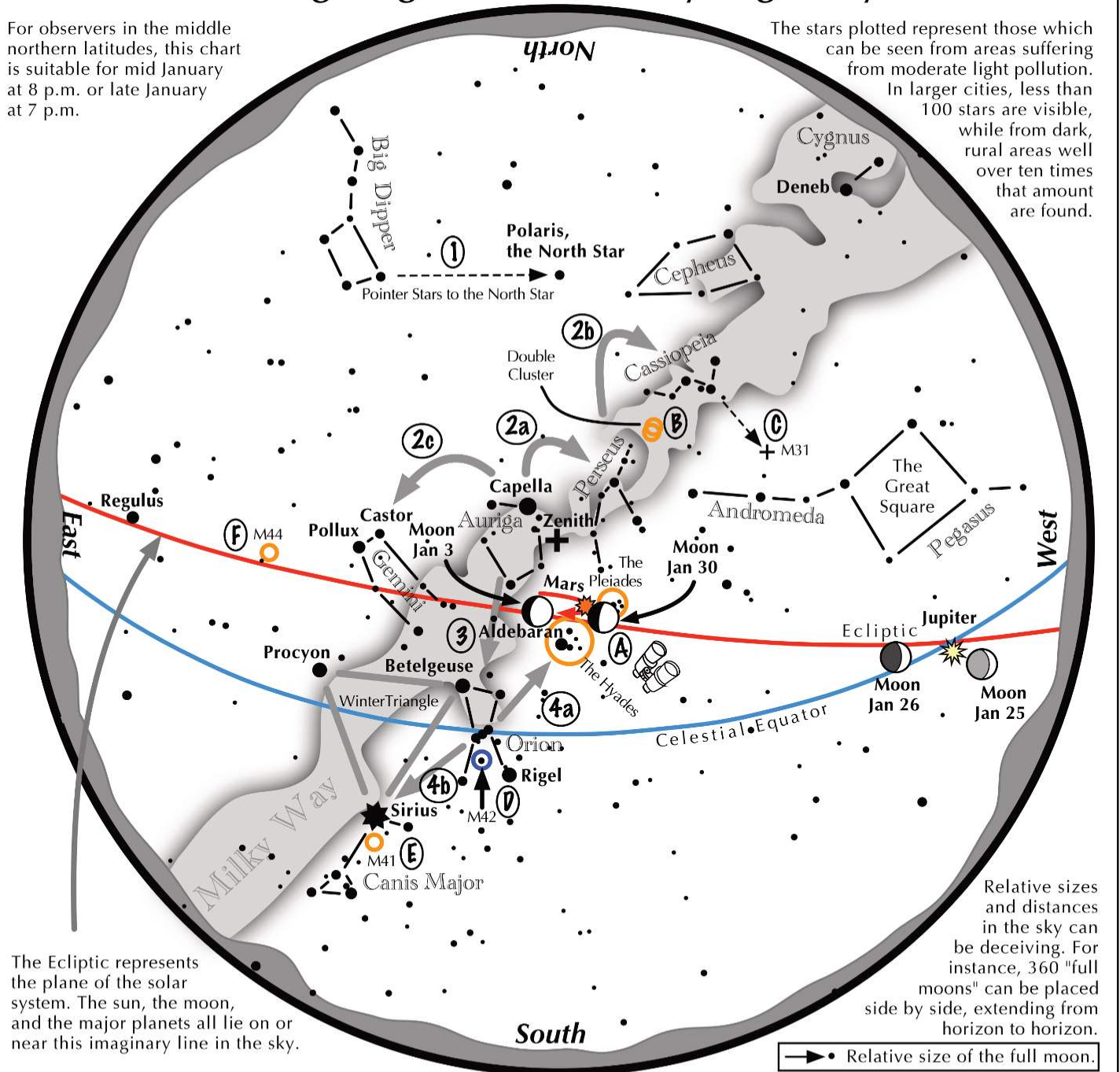
On January 22, the two planets reach their closest to each other. Look to the west-southwest 45 minutes after sunset for the pair. Binoculars will help pick Saturn out in the twilight.

On the following evening, the thin crescent moon floats to their upper left, seemingly full with earthshine.

Navigating the mid January Night Sky

For observers in the middle northern latitudes, this chart is suitable for mid January at 8 p.m. or late January at 7 p.m.

The stars plotted represent those which can be seen from areas suffering from moderate light pollution. In larger cities, less than 100 stars are visible, while from dark, rural areas well over ten times that amount are found.



The Ecliptic represents the plane of the solar system. The sun, the moon, and the major planets all lie on or near this imaginary line in the sky.

Relative sizes and distances in the sky can be deceiving. For instance, 360 "full moons" can be placed side by side, extending from horizon to horizon.

—•— Relative size of the full moon.

Navigating the winter night sky: Simply start with what you know or with what you can easily find.

- 1 Above the northeast horizon rises the Big Dipper. Draw a line from its two end bowl stars upwards to the North Star.
- 2 Face south. Overhead twinkles the bright star Capella in Auriga. Jump northwestward along the Milky Way first to Perseus, then to the "W" of Cassiopeia. Next Jump southeastward from Capella to the twin stars Castor and Pollux of Gemini.
- 3 Directly south of Capella stands the constellation of Orion with its three Belt Stars, its bright red star Betelgeuse, and its bright blue-white star, Rigel.
- 4 Use Orion's three Belt stars to point to the red star Aldebaran, then to the Hyades, and the Pleiades star clusters. Travel southeast from the Belt stars to the brightest star in the night sky, Sirius.

Binocular Highlights

A: Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **B:** Between the "W" of Cassiopeia and Perseus lies the Double Cluster. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** M42 in Orion is a star forming nebula. **E:** Look south of Sirius for the star cluster M41. **F:** M44, a star cluster barely visible to the naked eye, lies to the southeast of Pollux.



SOLAR ECLIPSE OCT 25 FROM ISRAEL

By Leah Sapir, PAS Member

On October 25, 2022, there was a partial solar eclipse that was visible in parts of Europe, northeast Africa, western Asia, and the Mideast. In Israel the eclipse was around 45%. (In some parts of central Asia it was about 80% at the greatest point, but that's not where I was.)

I made a pinhole projector and got a picture of the eclipse from my patio in

Israel. I like to have fun with my pinhole projectors. Last time (two years ago) I arranged the pinholes in the shape of a heart; this time I arranged them in the shape of a Star of David. Equipment used: a paper plate with pinholes, a cardboard box lid for a background, and a Galaxy S10 phone to take the picture.

Near Jerusalem, in the town of Maaleh Adumim, there is a high school

specializing in aviation technology and space studies; near the high school is an astronomical observatory, the Maaleh Adumim Space and Aviation Observatory, in cooperation with Kochvia Observatory. Yarin Mazor, an astronomer from the observatory, shared some pictures that he made with his smartphone (Poco X3) using a Meade Coronado PST40 telescope with an H-alpha filter.



THIS IS THE SUN AT 25% ECLIPSED (MEADE CORONADO PST40 TELESCOPE WITH AN H-ALPHA FILTER). TAKEN BY YARIN MAZOR



ON OCT 25TH, THIS IS THE ECLIPSE SEEN WITH A PINHOLE PROJECTOR. EACH DOT OF LIGHT IS AN IMAGE OF THE ECLIPSED SUN. PHOTO BY LEAH SAPIR.



THIS IS THE BEGINNING OF THE ECLIPSE; SOLAR FLARES VISIBLE AT EDGE (MEADE CORONADO PST40 TELESCOPE WITH AN H-ALPHA FILTER). IMAGE BY YARIN MAZOR.



THIS IMAGE WAS FROM MY MEADE CORONADO PST40 TELESCOPE WITH AN H-ALPHA FILTER, THEN EDITED WITH SNAPSEED TO REMOVE THE GLARE. PROVIDED BY YARIN MAZOR.

BENCHMARK SCHOOL Nov 4

By Mayank Maheshwari, An Awesome
Attending Parent

Hi Terri and Team, it was a great Sky night event on 4th Nov 2022 in Benchmark School. My Son 'Parth' enjoyed it a lot. As requested, please find some of the snaps captured on that night. Thank you once again.

By Terri Finch, Event Manager

The Telescope Team all arrived about the same time at Benchmark for this event. We started setting up and then Bob showed up with the pizza from Streets of NY and Kyle had a case of water. We enjoyed the pizza and water and got to work looking for objects.

The team at this event was William and Terri Finch with Terri's 8-inch telescope, Bruce Wurst with his 12-inch, Pete Turner with his 12-inch, Storm Moon

and Jake Von Ruhr with Storm's 8-inch scope, and Mike Marron with his awesome collection of meteorites.

During the event which was from 6:30pm to 8:30pm, the sky was very clear at first. It was a really good show for the attending adults and kids. The kids were doing the Space Safari which is a Treasure Hunt to find all twelve objects on the page. At the beginning of the evening, all twelve objects could have been found, but at around 7:30pm, the sky got a wispy cloud covering that took away some of the objects needed for the Treasure Hunt. So, I gave prizes for having tried to do the Treasure Hunt, no matter how many objects they found, and as long as they could tell me what they were able to see. By about 8pm, the main crowd was down to a few left and Kyle came by to let us know it was time to pack it in.

Along with the telescopes and Mike with his meteorites, the Teacher Heather Rheinfelder had arranged for Rick and his awesome trailer that takes the kids on a virtual tour through the cosmos to be there. Many thanks to Heather, and her Dad Bob, who brought the pizza, and to Kyle filling in for her as she was home sick during the event. Before leaving, the Telescope Team signed a Get Well card I had brought with me to leave on Heather's desk.

It was a fun event and the Treasure Hunt happened very smoothly. Everyone seemed to be involved in looking through the telescopes and enjoying the evening. About 8pm is when the temperature dropped quite quickly and the crowd left. PAS Is looking forward to doing this event again next school year.



PARTH LOOKING THROUGH TERRI'S TELESCOPE. PHOTO TAKEN BY PARTH'S DAD MAYANK MAHESHWARI.



PARTH, TERRI, JAKE, STORM, AND WILLIAM AT BENCHMARK SCHOOL NEAR THE END OF THE EVENT AS WE WERE PACKING UP. PHOTO PROVIDED TO PASTIMES NEWSLETTER BY PARTHS' DAD, MAYANK MAHESHWARI.

PARDES JEWISH SCHOOL Nov 12

By Roger Anzini, PAStimes
Star Tour Member

I arrived at Pardes school about 4:55pm, pulled up to a curbside near the grassy field. Before I opened the car door

a smiling face said, "You must be Roger...I'm Lauren." And the delightful hospitality went forward from there. It was a wonderful evening for a star party at this school.

Lauren Kreisberger writes: Hi Terri,

Roger and Ted were amazing and we are so happy that they were a part of our event. We look forward to working with you again soon! All the best, Lauren.

TELESCOPE WORKSHOP DEC 8

By Terri Finch, Event Manager

This was a full house and a very successful evening. I wish to thank everyone who attended, students and teachers. One student and two teachers did not show up. In total, eight students and nine teachers attended. Big night!

William and I arrived about ten minutes before 7pm to find Richard Sauerbrun and Roger Anzini waiting outside the locked door to G-147. We chatted while we waited for 7pm to come and for the door to be unlocked. As we stood there, we realized we heard voices inside. So I knocked and Casey Durandet and her teacher's assistant, I think, were in there doing some scheduling. We chatted for a bit, I explained the situation and then they departed and gave us the use of the room. Thank you Casey!

Once we were inside, I started setting up for the class and then more teachers arrived. Stu Brackney, Bruce Wurst, Calvin Vance, and Richard Pipkin came inside. Closer to 7:30pm, Tim Clapp arrived.

Attending Students were: Rick P. who brought his Celestron CPC 1100 XLT, for which Bruce assisted him. Jeanne H. brought her Tasco 302675 and Richard S. assisted her and her family.

Jeanne writes: Thank you for a helpful meeting last night! What a nice, nice group you have :) Jeanne H.

Ilan C. brought his Celestron 70mm travel scope and Richard P. assisted with that telescope. Ritz K brought his Aperatura AD8 and William F. assisted with that telescope, and then later in the evening, Bruce came over with his collimator and took a look. Joe S. brought his new Skywatcher 150 Tabletop Scope and Roger A. assisted with it.

Kathleen J. brought her 15x70 binoculars and Cal helped her with them. At the center table we had Mel S. and Beth F. interested in figuring out what telescope to purchase. They were assisted and advised by Stu, myself, Roger, Bruce, and Tim. We also had one walk-in, Joshua L.

The class started at 8pm, as the last scope arrived about that time. So, I had Stu get everyone's attention and do a little introduction. Then I lead the "Introduce

the Teachers" part of the class. The purpose of this is to let the students know what the teachers specialize in, and give some history on how the teachers got involved in astronomy. An example of this introduction would be that Bruce is the Telescope Fix-it person for the club and so if you need your telescope repaired or looked at in any way, see Bruce about it. This worked out very well.

Eventually, I turned the floor over to Cal for about 15-20 minutes and he gave a presentation on how to clean your eyepieces without ruining them. After that, the attendees went back to their teachers for more advice and help.

Many thanks to everyone who attended. I really believe this evening was successful for everyone who attended. The telescope teachers were wonderful! Thank you all!

Rick writes: Ms. Finch, Thank you very much for hosting this event. Bruce Wurst was extremely helpful to me.

Sincerely, Rick Pasquale, owner of a Celestron CPC 1100

Kathleen writes: We're glad we came too!! Thank you both very much. Looking forward to meeting up again. Kathleen

By Richard Pipkin, PAS member and one of the telescope teachers:

Ilan had recently purchased a Celestron 70mm Travel Scope. Now, I confess I'm somewhat wary of this category of instrument. I'd bought one for my grandson several years ago (an Orion version) and returned it the following day. The problem was that while the tube and eyepiece were excellent given the price point, the tripod was so rickety I was unable to align the finderscope even with the tripod legs fully retracted. A few months later a gentleman in our neighborhood came to me with the same problem. He'd bought a travel scope for his son. They'd been unable to align the finderscope and they found the scope to be so jittery it was difficult to observe anything other than the Moon. This seems to be a common complaint with other manufacturers as well. Another issue I object to with these instruments is they come with a backpack (hence "travel scope") that I contend is virtually useless.

Assume you've taken the scope on a camping trip. You've spent an hour setting up the finder with partial success and used the scope for a while. Then, when it's time to pack up, the scope needs to be completely disassembled (i.e. the finder needs to be removed) in order to fit everything into the backpack. Or, say you're going on a hiking trip with the scope to set it up at a dark site. The problem here is that there is no extra room in the backpack for even a water bottle. So, you'd better not go far, and it'd better not be a hot day!

Well, back to our friend Ilan. His scope came with serviceable 20mm and 10mm Plossls and, unusually, a 45-degree (erect image) diagonal. In addition to the fact he had been unable to align the finderscope, he'd been further frustrated by the dissimilar images in the finder and the scope itself. The tripod was, as expected, decidedly rickety. Also, the head, which screwed into the scope's bottom plate, similar to a standard camera fitting, had noticeable play between its parts and was difficult to lock into position.

I advised Ilan that the first thing he needed to get was a sturdy tripod. I recommended a Manfrotto, similar to a version I currently own which sells for about \$200 including bull head. This came as something of a shock since he'd paid little more than \$100 for the equipment he'd purchased. (I later looked up Celestron's own glowing account of the Travel Scope and could see why it would be so appealing to a first-time buyer). I also advised that he'd probably be happier with a red dot or Telrad finder, and a right-angle diagonal should also be on his list. At that point, our luck changed.

As it happened, a young man sitting next to us had brought in a pair of high-power binoculars. He suggested we try the \$100 tripod he'd also brought to the session. The tripod looked well-made and fairly rigid. We mounted the scope and Ilan was immediately delighted with the results. The moon was easy to find with the unaided scope and produced clear, steady views. Ilan was sold and probably ordered his new tripod that very evening!