nightwatch
Newsletter of the Pomona Valley Amateur Astronomers

Extraordinray claims require extraordinary evidence. ***Carl Sagan***

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Volume 43 Number 1 ***nightwatch*** **January 2023**

Club Events Calendar

Jan 6	**Virtual General Meeting- Ken Elchert – "Neil Armstrong Birthplace" 7:30 PM**
Jan 21	**Star Party – Mecca Beach**
Jan 25	**Board Meeting 6:15 PM**
Feb 3	**Virtual General Meeting 7:30 PM**
Feb 18	**Star Party – Anza Borrego**
Mar 1	**Board Meeting 6:15 PM**
Mar 10	**Virtual General Meeting 7:30 PM**
Mar 25	**Star Party – TBD**
Mar 29	**Board Meeting 6:15 PM**
Apr 7	**Virtual General Meeting 7:30 PM**
Apr 22	**Star Party–TBD**
Apr 26	**Board Meeting 6:15 PM**
May 5	**Virtual General Meeting 7:30 PM**
May 20	**Star Party – TBD**
May 24	**Board Meeting 6:15 PM**
Jun 2	**Virtual General Meeting 7:30 PM**
Jun 17	**Star Party – TBD**
Jun 28	**Board Meeting 6:15 PM**
July 7	**Virtual General Meeting 7:30 PM**
July 15	**Star Party – TBD**
July 26	**Board Meeting 6:15 PM**
Aug 4	**Virtual General Meeting 7:30 PM**
Aug 19	**Star Party – TBD**
Sep 16	**Star Party – TBD**
Sept 20	**Board Meeting**
Sep 29	**Virtual General Meeting 7:30 PM**
Oct 14	**Star Party – TBD**
Oct 18	**Board Meeting 6:15 PM**
Oct 27	**Virtual General Meeting 7:30 PM**
Nov 8	**Board Meeting 6:15 PM**
Nov 17	**Virtual General Meeting 7:30 PM**
Nov 18	**Star Party – TBD**
Nov 29	**Board Meeting 6:15 PM**
Dec 9	**Holiday Party**

PVAA Officers and Board

Officers

President	Mathew Wedel	909-767-9851
Vice President ..	Joe Hillberg	909-949-3650
Secretary	position is currently open	
Treasurer	Gary Thompson	909-935-5509

Board

Jim Bridgewater (2022).....	909-599-7123
Richard Wismer(2022)	
Ron Hoekwater (2023).....	909-706-7453
Howard Maculsay (2023)…….	

Directors

Membership / Publicity....	Gary Thompson	909-935-5509
Outreach	Jeff Schroeder	909-758-1840
Programs	Ron Hoekwater	909-391-1943

New Worlds Of Water

We explore distant new worlds,
where vital water might hide.
We crash Moon shadows so deep
they hold only ghosts of our need
to find an artesian spring of chance
between man's reach and his stars.

Where is that fluid womb for life?
We scar Mars' weird scarlet sands,
its two moons named fear and panic.
Our robots rove frozen red oblivion,
probing its ancient erased oceans
that once held juicy liquid assets.

We land on hazy icy Titan,
where Saturn's tilted rings arc
like our rising question marks.
Always searching for warm seas,
we reveal only odd alien droughts.
Our desires find no splash landings.

So where is our holy water?
Curiosity is self-revelation,
deep within we hold our breath.
There is one wet world and it's us,
if we desiccate it's pool to death
only the void will hold our ashes.

Lee Collins

Another Look - January 2023

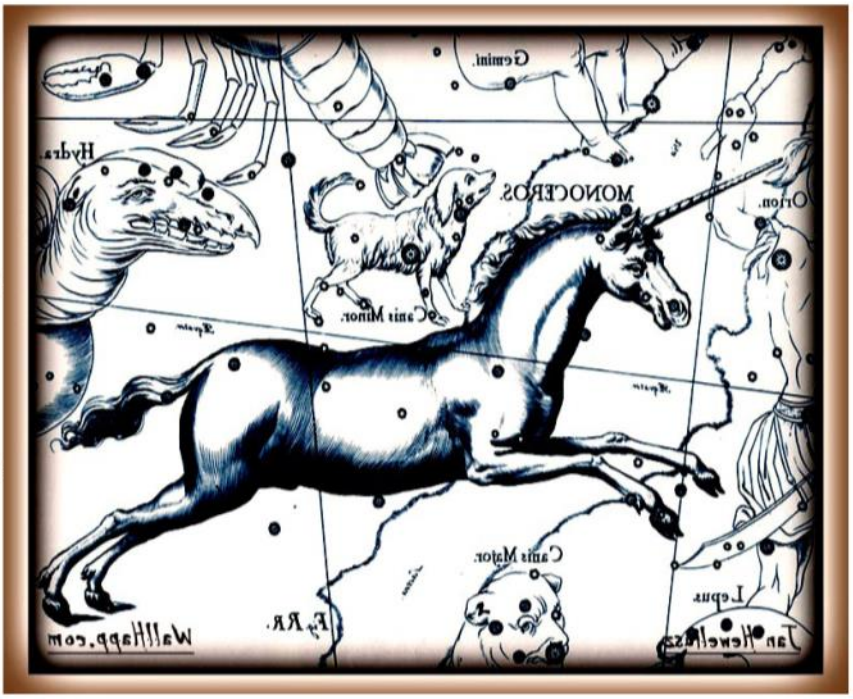
2023 January Another Looks Notes
Full moon January 6, New moon Saturday, January 21
Other names are Wolf Moon, Stay Home Moon and Quiet Moon. Moon After Yule.
Native American names are Severe Moon and Center Moon.

As a constellation, Canis Minor has only been around for a couple thousand years. As a constellation, Procyon, under various names, has been around four thousand years, at least. Canis Minor made Ptolemy's Almagest in the 2nd century CE, but way before that the Egyptians used Procyan to clock the rising of Sirius who clocked the rising of the Nile. The Nile was not the only waterway that benefited by the ancient clock. The Tigris-Euphrates in Asia Minor, the Padma in India and the Yangtze in China all rose and fell to one extent or another annually clocked by the calendar of the stars.
Another river marked by the ancient people is the river in the sky, the Milky Way. Rising a half hour before Sirius, Procyon was an important time marker. Not only floods, but seasons, winds, monsoons and snow melt were tracked by even the poorest people using the sky as their only calendar.

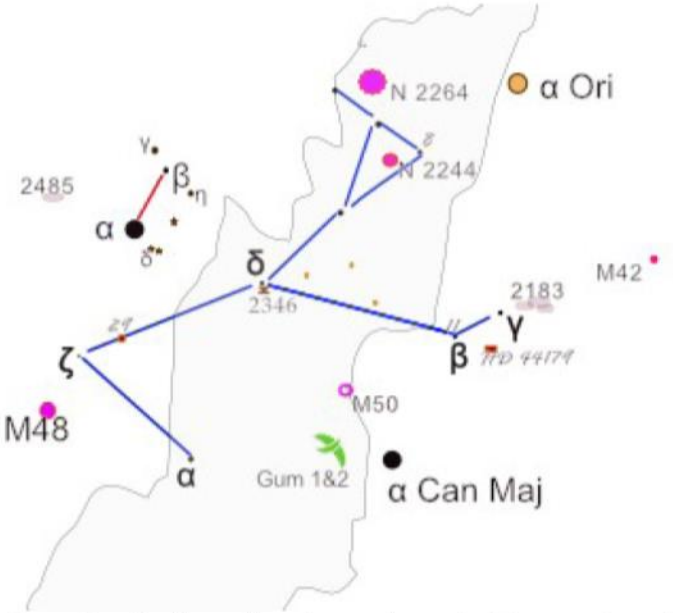
> Canicula, fourteen thy stars; but far
> Above them all, illustrious through the skies,
> Beams Procyon; justly by Greece thus called,
> The bright forerunner of the greater Dog

Procyon comes from the Greek "before the dog" and has been part of a modern constellation only since then. Canis Minor has for the most part a grisly history usually resulting in someone dying or getting eaten β Beta Canis Minoris http://lynx-open-ed.org/OERs/Urania%27s-Mirror-Full-Page-Version.pdf is named Gomeisa which means teary eyed or maybe bleary eyed. Gomeisa and Canopus are sisters weeping for their loved one and placed in the sky in remembrancProcyon is a double. 1st magnitude Procyon A has as a companion, 13th magnitude Procyon B. If you're in for a bit of a challenge, it is said that Procyon B is more difficult than Sirius B because of the greater magnitude differential. One for the bucket list. There are a couple of other stars of interest in CanMin.Most interesting is Luyten's star, located between δ and η on the chart. Its a little brighter than 10th magnitude and quite red. It also has two confirmed planets. Delta δ Canis Minoris is also interesting because of three stars of 5th magnitude close enough to see in your low power field. NGC 2485 is a 13th magnitude spiral galaxy. It has very diffuse spiral arms and a starlike nucleus, tough to see. Burnham did not list N2485 but did list γ and η as doubles with large magnitude differences.
In the early 1600's Cartographers began drawing maps and celestial globes from and for returning seamen whose perilous journeys around the globe used stars and natural landmarks as navigation guides. These guides were especially important in the southern hemisphere with no north star nor time keepers to keep them oriented. Portugal, Spain, France, Belgian, Holland and Great Britain all claimed territory and they wanted to know where it was and how to get there so they could begin their exploitation.

"a very ferocious beast, similar in the rest of its body to a horse, with the head of a deer, the feet of an elephant, the tail of a boar, a deep, bellowing voice, and a single black horn, two cubits in length, standing out in the middle of its forehead." Pliny



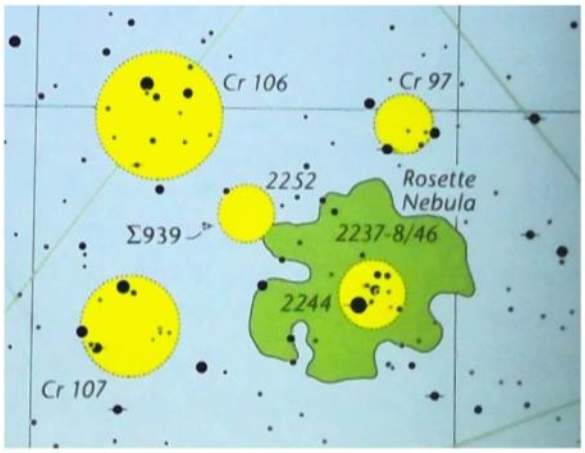
In the late 1500's cartographers used the journals given them by the surviving sea-darers and began making maps and globes. When you look at the globes the critters on them are backwards. That was because you were to imagine yourself inside the globe looking out. Being naturalists, these artists,cartographers and globe makers pulled from the natural world, as they knew it, for inspiration. They covered the newly found sky and the blank areas in the known sky with a veritable menagerie of animals and birds. They drew new constellations of Bees, Birds, Lizards, Goldfish, Snakes and even a Triangle and a Cross. A decade later another globe was made showing even more wild and woolly subjects and natural features, of whom, only Camelopardalis and Monocerous remain.



On a poorish kind of night, maybe with a few streetlights thrown in, you probably won't see Monocerous. It's there; between Betelguese and Procyon is a sprinkling of 4th magnitude stars and one naked-eye nebula. Living as it does mostly in the milky way Monocerous has open star clusters, a globular, several interesting variable and multiple stars and two of the finest deep sky objects up there.

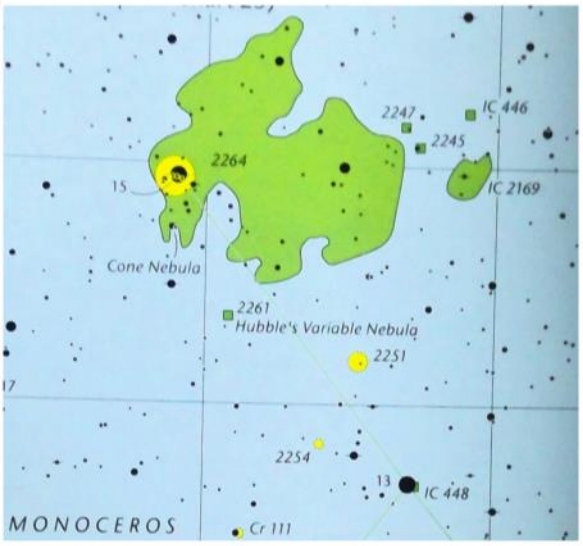
Back in the mid 80's, just before Halley's Comet, I met a fellow at RTMC who had intense knowledge and a telescope. His name is Dana Patchnik and he showed me the Rosette in a 17.5 incl telescope. It is huge. Twice the size of the full moon and apparent even without filters. Screw in that filter, though, and you are wowed. Monocerous is wonderful. It has 36 Collinder's, more than any

other constellation. It has two spectacular nebula with star clusters attached and sprinklings of small clusters and nebula throughout its constellation boundaries.
https://ocastronomers.org/wp-content/uploads/2018/12/ROSETTE-NGC2244.jpg **Credit Philip R. Stagnitto**



There are five NGC's in or with the Rosette. NGC 2244,
Caldwell 50, is the Open Cluster you see in the center and was discovered by Flamsteed in the 17th century. NGC's 2237, 2238, 2239 and 2246 are pieces of the nebula. Sprinkled around the Rosette are several open clusters. Collinder 104 is next to 107, 106 and 97. You have to be something of an open cluster fan to scope these out. The conventional wisdom is to use wide field and low power, a biggish telescope will blow right through them. A friend of mine named Harv Pennington, made a viewer where he looked down through a pair of binoculars into a flat mirror that reflected the object to the eye. If you look up Project Moonwatch on the internet you will see all the different spotting scopes they used back then to follow our new satellites. If ever I decide to spend some time on open clusters, I think I'll find a flat and a decent finder and cobble one together.

It's an interesting project to try to identify what parts of the nebula and what small sprinkling of stars is defined by a NGC or a Collinder number. This is a crowded piece of space, Simbad **http://simbad.u-strasbg.fr/simbad/sim-id?Ident=Rosette+Nebula** has a very good photo of the whole area. It will help you pick out the individual clusters and even Struve 939, a nice triple star system.
Using Sky and Telescope's *Pocket Sky Atlas* is also a good place to start. It is from the *PSA* that I copied these charts. **Ray Stann** at **https://www.temeculavalleyastronomers.com/photo-gallery.html**



North of the Rosette is NGC 2264, the proper name for the Christmas Tree. The entire nebula has by itself not been

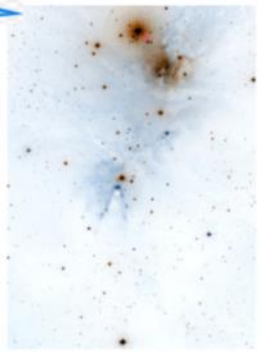
given a nickname, surprisingly. Instead it is usually referred to byits two distinct features, the Cone Nebula and the Christmas Tree Cluster. The entire nebula will take the visual observer an hour to explore. I think the Christmas Tree cluster is beautiful. It shines and it sparkles, it points to the Cone, it is visually remarkable.

As most any chart will show you, there are many objects to explore around the Christmas Tree.
NGC 2247 has several distinct neighbors including NGC 2245, IC 447 and IC 448.
Between the two nebulae is Basel 7, another really sparse open cluster, and a couple more Collinders.

My favorite outlier is Hubble's Variable Nebula, NGC 2261. Hubble was one of my hero's. Using the biggest telescopes and making the best astrophotographs during a career that spanned over 30 years, Hubble is an ideal professional for a young astronomer to model himself or herself after in their imagination.
It maght take a little time to find the nebula. Its bright enough, about 9th magnitude, but kinda diffuse and, once you've found it, a little unimpressive. It would be a fun project, especially for those of you with CCD cameras, to take magnitude estimates every month for the next year or two and make your own light curve, then you can publish it in this newsletter.
As the image of the region around the Cone and the Christmas Tree points out. there is a huge mass of bright nebulosity broken up by dark nebula. We can identify IC 447 as well as NGC's 2254, 2264 and NGC 2251. IC 446 and IC 447 is 7th magnitude so it can be found but much of your success in the area depends on your filters and your patience. This is a SII-NII-Ha image and can be found at: ***https://cs.astronomy.com/asy/m/nebulae/488643.aspx***

I keep seeing the image of the Christmas Tree in my minds eye as I'm writing this. Golly, but its beautiful. It even as a little tree topper, the tip of the cone.
http://simbad.u-strasbg.fr/simbad/sim-id?Ident=Christmas+Tree+Cluster

https://ocastronomers.org/wp-content/uploads/2018/12/NGC-2264-.jpg



This 2010 image by OCA member Jeff Malrose show the Christmas Tree and its nebulosity beautifully.
IC 447 is also interesting because it has been named Dreyer's Nebula. This is the John Lewis Emil Dreyer of the NGC and IC catalogs. It seems EE Barnard (another of my hero's) found the nebula and reported it to Dreyer. Barnard then referred to it as Dreyer's 447. We have since then called it Dreyer's Nebula, not Barnard's.

There is an unusual protostar and a planetary in Monocerous that are easy to find and unusual to look at. NGC 2346 is a planetary nebula right next to delta δ. It is 9th magnitude and squarish. HD 44179 is a protoplanetary nebula right near beta β, its also 9th magnitude and squarish. I have never looked for it, but visually there should be a double star at the center of the nebula blown out by the astrographs much like the the Trapezium is hidden in M42. It will be interesting to see it that's the case.

Slip over to gamma γ from beta β for another group of fainter nebulosities that are brighter knots in a much larger nebula. NGC's 2182, 83, 85 and 70 are all within a couple of degrees of gamma γ. NGC 2185 is the root of the cluster with several stars making up their own open cluster. The nebulae are strung out on a line, should be fun identifying the individual members. Click on the hypelinks for additional images.

https://www.flickr.com/photos/97807083@N00/49682162642/in/dateposted/ and ***http://www.caelumobservatory.com/gallery/n2183.shtml***

Inthe south of Monocerous near the border with Canis Maj., is alpha α Monocerotis, the brightest star in Monocerous at a skosh brighter than 4th magnitude Down there futher south, Monocerous has more objects of interest: M50, NGC 2506 the area around Gum 1 and Gum 2 and the Seagull.

M50 and NGC 2506, Caldwell 54, are typical open clusters of the visual magnitude ilk. They are rather sparce, M50 is 6th magnitude and N2506 is 7th. M50 will, of course, be easier to see since it has five times the stars of N2506.
https://ocastronomers.org/wp-content/uploads/2018/12/IC2177_SCH_02212012_01.jpg

A telrad field south of M50 will put you right at the left wing of the Seagull nebula, IC 2177. A little better than half the Seagull is in Monocerous, the balance in Canis Maj.. NGC 2335 is at the crest of the left wing, is 7th magnitude and is centered by a brighter star. NGC 2343 is also an open cluster located in the hollow created by the left wing and body of the seagull. This whole area is active HII regions, so all you will see unfiltered is the open clusers and a little diffuse nebulosity. Gum 1 is the head of the seagull. Colin Gum did his work from Mt. Stromlo observatory in the 1950's. It is heartbreaking to remember that firestorm in 2003 that destroyed 75 years of telescopes, records and hard work.
https://en.wikipedia.org/wiki/File:The_Seagull_Nebula,_IC_2177_March_2021.jp

Dark Skys Dave Phelps

NASA Night Sky Notes January 2023

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!

Spot the Messenger: Observe Mercury

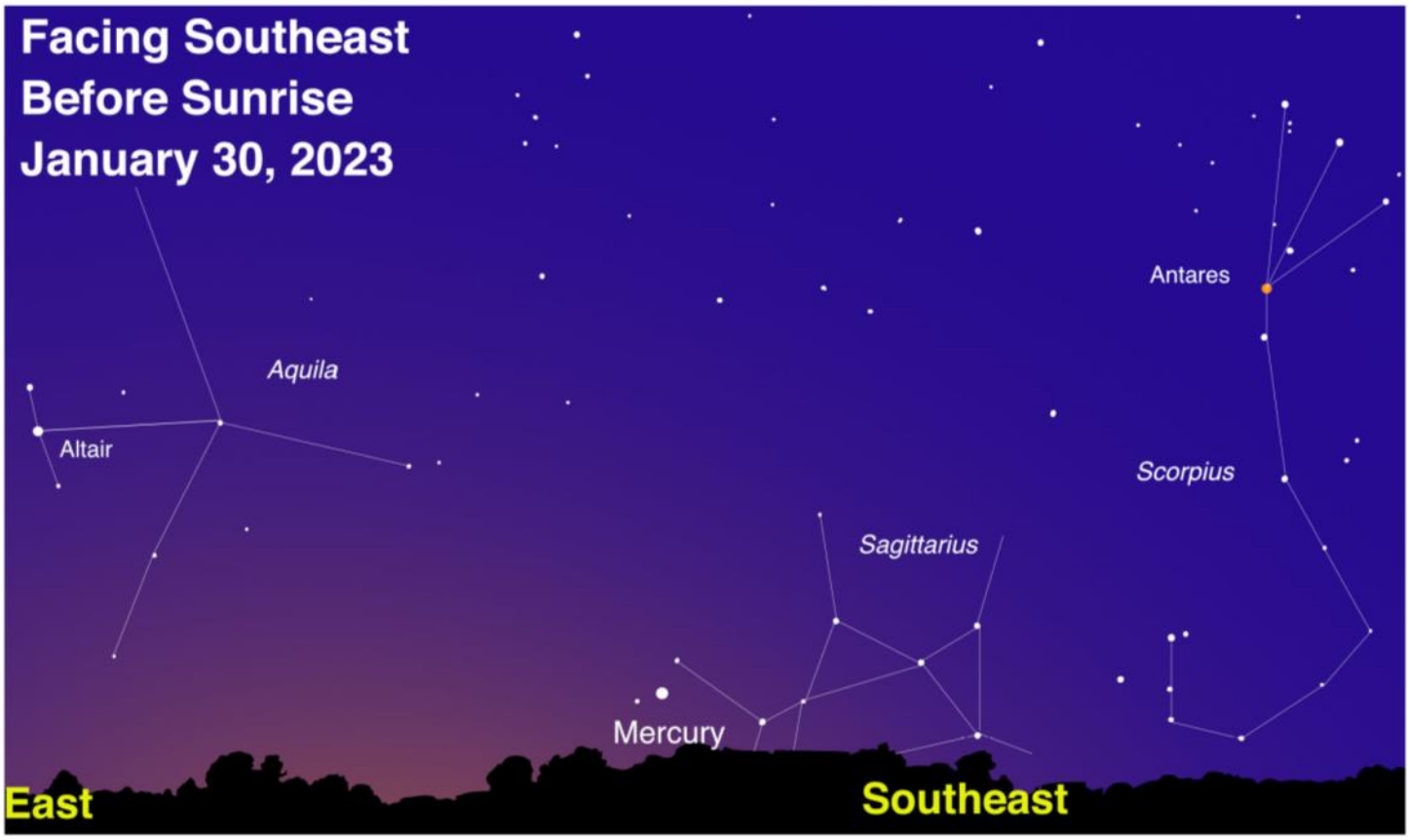
David Prosper

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.

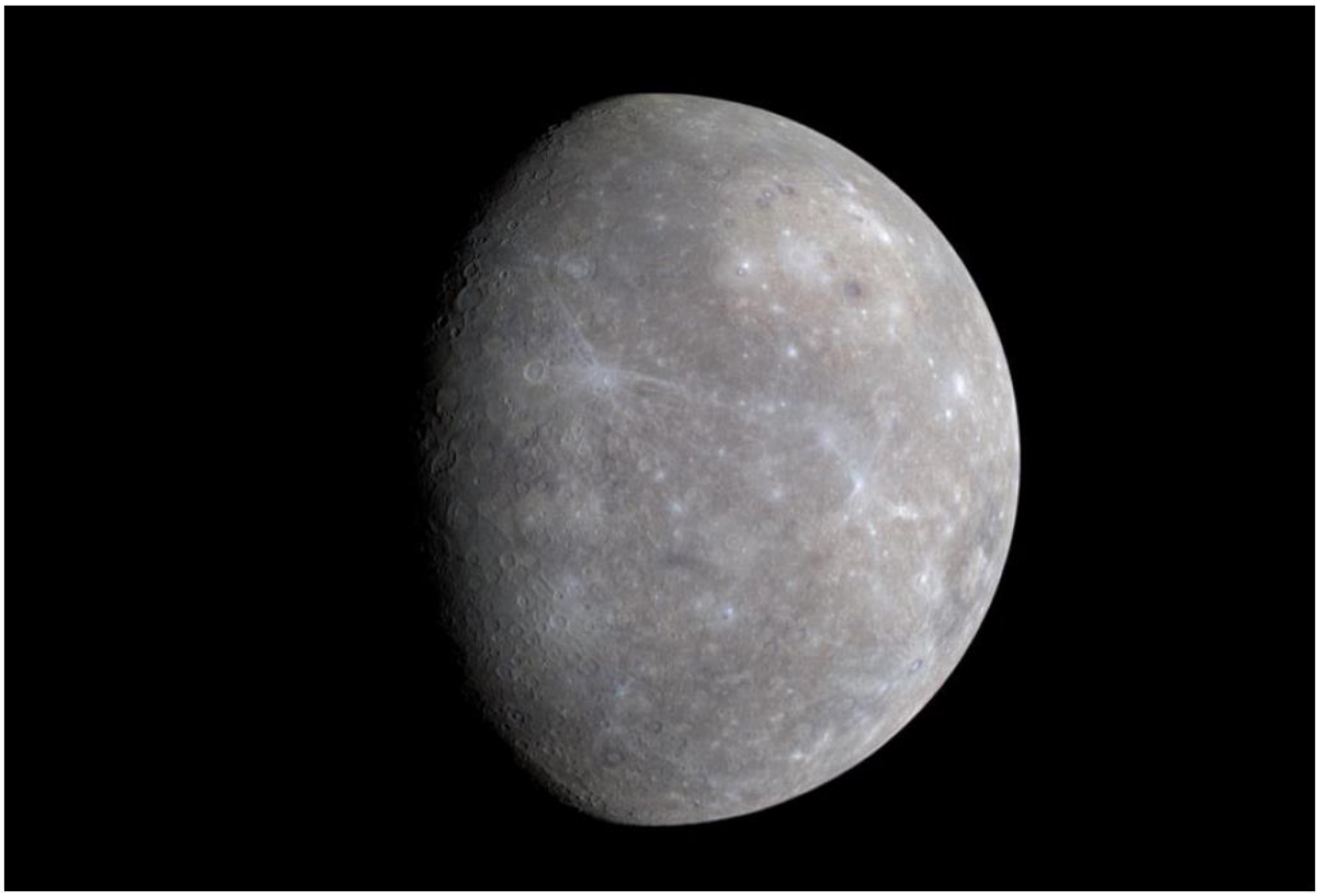
Despite being a small and seemingly barren world, Mercury is full of interesting features. It's one of the four rocky (or terrestrial) planets in our solar system, along with Earth, Venus, and Mars. Mercury is the smallest planet in our solar system and also possesses the most eccentric, or non-circular, 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.



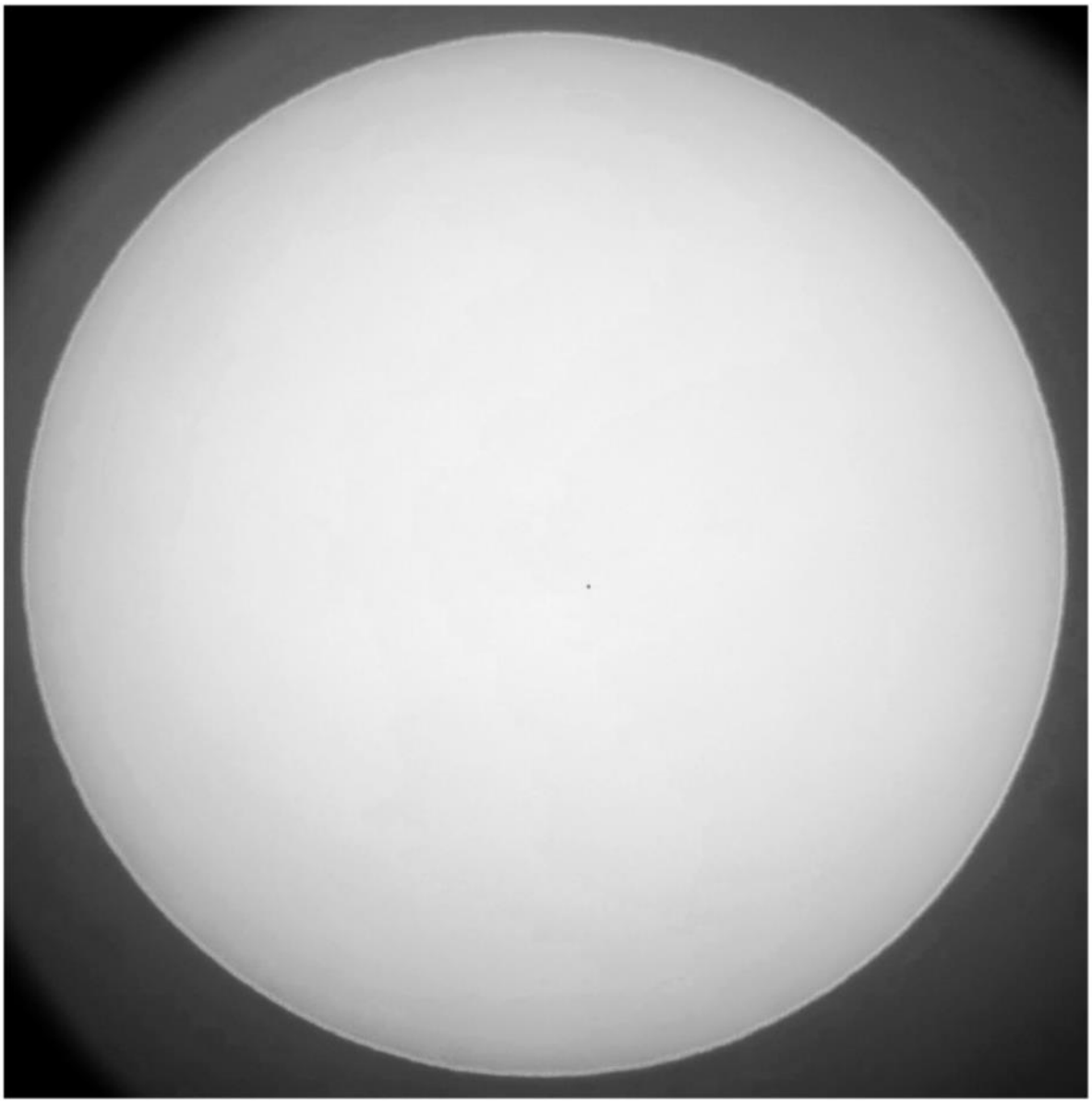
Mercury reaches maximum western elongation on the morning of January 30, which means that your best chance to spot it is right before sunrise that day! Look for Mercury towards the southeast and find the clearest horizon you can. Observers located in more southern latitudes of the Northern Hemisphere 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

NASA Night Sky Notes January 2023



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/

NASA Night Sky Notes January 2023



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.