Snake River Skies

The Monthly Newsletter of the Magic Valley Astronomical Society

January 2024

Membership Meeting
January 13th at the Herrett Center
CSI main campus at 7:00pm

Centennial Observatory
See Inside for Details

Faulkner Planetarium
See Inside for Details

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Magic Valley Astronomical Society is a member of the Astronomical League

M-51 imaged by
Rick Widmer & Ken Thomason
Herrett Telescope - Shotwell Camera

www.mvastro.org

Vice-President's Message

MVAS Astro members and friends…Hope you had a Merry Christmas and Happy New Year. Our scheduled meeting on the 13th will feature: Stephen C. Hummel from McDonald Observatory: The Greater Big Bend International Dark Sky Reserve is the largest certified Dark Sky Place in the world at over 15,000 square miles in western Texas and northern Mexico. Creating the reserve required decades of education and outreach efforts, strategic partnerships, countless volunteer hours, and passing 11 separate outdoor lighting ordinances. In this talk, Stephen Hummel of the University of Texas' McDonald Observatory will discuss the creation of the Reserve, efforts to measure light pollution, and the challenges dark sky preservation efforts face.

BigBendDarkSkyReserve.org I hope everyone will attend our first meeting 2024. I should mention that January is the time we all need to get caught up on our dues. Jim Tubbs will gladly accept your annual dues, which is still is $20 / member. Quite the bargain in this day and age.

Chris Anderson let us know about a star party for June 8th which is our meeting night, so I think we should change the meeting to June 1st – what are your thoughts?

I received an e-mail from Leslie Groves, our liaison at Hagerman Fossil Beds (HAFO). Much to my surprise and delight, Craters of the Moon (CRMO) has chosen their star party dates this year in honor of their centenary celebration), and they DIDN'T pick our first choice for our HAFO star party (Saturday, June 8th). Thus, HAFO staff will be on hand to support the event. And, we can go ahead and lock in July 5th & 6th for Castle Rocks (pending their approval) and not have to worry about having to host our two biggest summer events on back-to-back weekends.

The only wrinkle is that I'll need to solicit volunteers to run the observatory for the second Saturday star party on June 8th, and that, of course, is also MVAS meeting night.

From Chris about Comet C/2024 A3 and Ceveat! Comet C/2023 A3 (Tsuchinshan-ATLAS) has emerged from superior conjunction and is being observed again after a 2.5 month hiatus. The good news is that its brightness is still tracking along a curve that would make it the brightest comet since Hale-Bopp in October 2024. Caveat: The comet is still well past the "ice line," where the sublimation of frozen gases begins in earnest. So, until it gets inside the orbit of Mars (on July 22, 2024), it's likely premature to get too excited about it (cf. C/1973 E1 (Kohoutek)).It's currently around magnitude 14 in eastern Virgo, about 3.5° ESE of Rijl Al Awwa (Mu Virginis, Virgo's left foot) , rising around 4:00 AM and standing 23° above the SE horizon at the start of astronomical twilight (6:22 AM).

Here's a link to the latest light curve: https://www.cobs.si/comet/2410/

Look forward to seeing everyone January 13th

Jay Hartwell
Vice President, MVAS

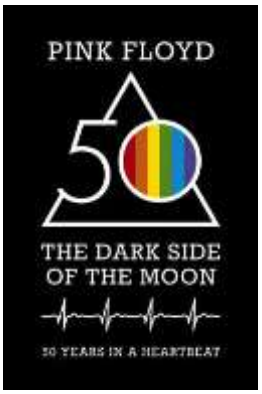
Centennial Observatory and Faulkner Planetarium Events

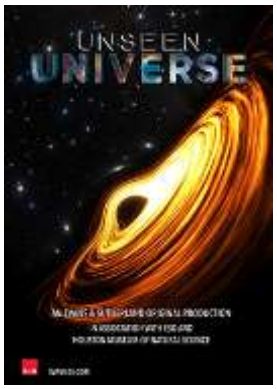
Observatory Upcoming Events
All events are weather permitting.

Event	Place	Date	Time	Admission
Telescope Tuesday	Centennial Observatory	Tuesday, January 9th, 2024	6:15 to 9:00 PM	$1.50 or free with Faulkner Planetarium admission
Monthly Free Star Party	Centennial Observatory	Saturday, January 13th, 2024	6:15 to 9:00 PM	FREE
Telescope Tuesday	Centennial Observatory	Tuesday, January 23rd, 2024	6:30 to 9:00 PM	$1.50 or free with Faulkner Planetarium admission
Close Daytime Conjunction of Mercury and Mars	Centennial Observatory	Saturday, January 27th, 2024	11:00 AM to 12:00 PM	FREE

Faulkner Planetarium Shows
For the full schedule and current show times visit!

Now Showing!





Visit the Herrett Center Video Vault

The Night Sky This Month – January 2024

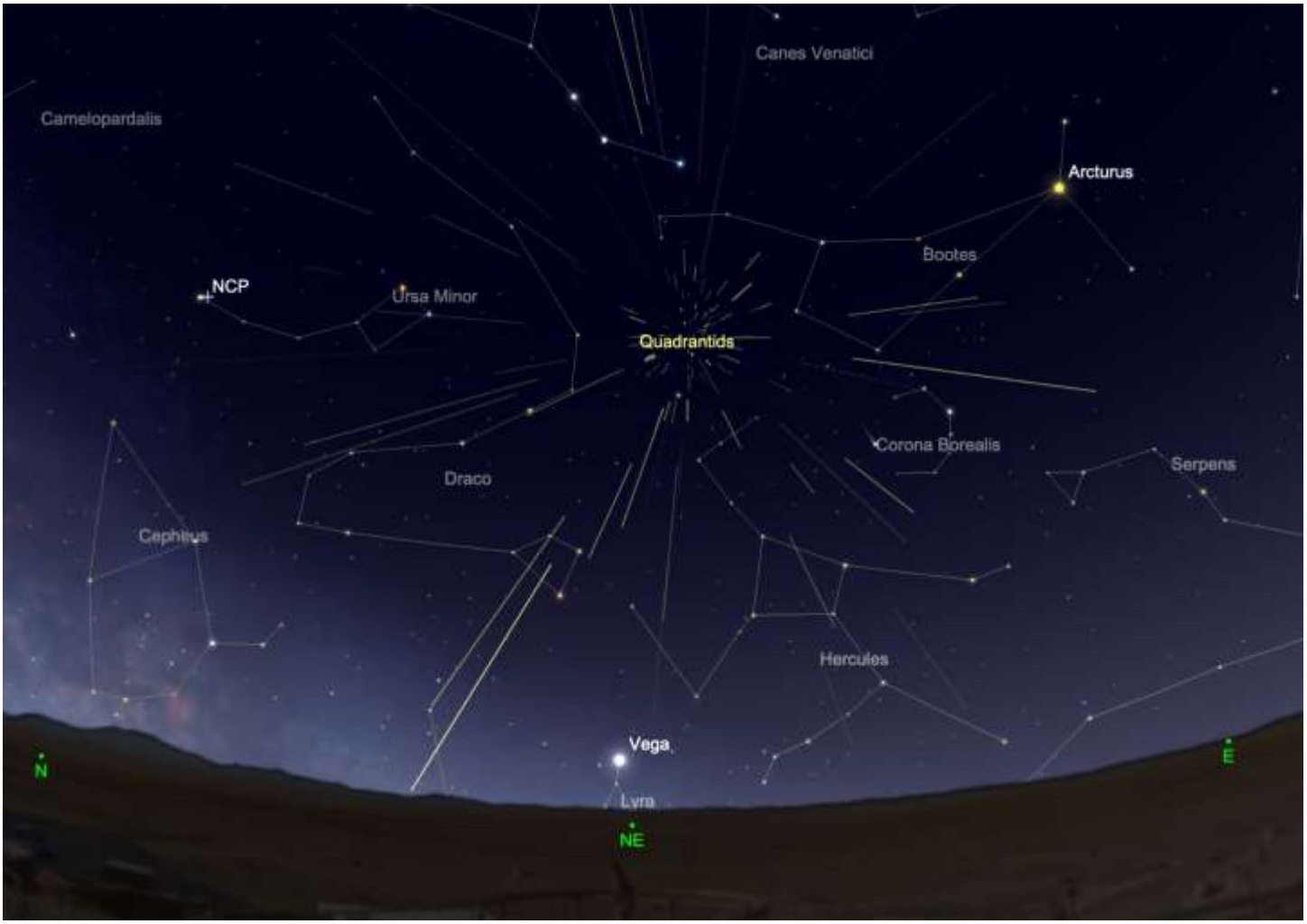
The southern Milky Way.

(Looking for last month's 'Night Sky'? Find it at this link…)

Happy New Year! The year 2024 arrives with a promising but brief meteor shower, and plenty of planets putting on a show in the morning and evening skies. Mars, Mercury, and Venus perform their gravitational minuet before sunrise, with the Moon joining the show on the 8th, the same morning some observers see the Moon pass in front of Antares. Saturn and Jupiter linger in the west after sunset, both planets still worthy targets for a small telescope. Here's what to see in the night sky this month!

3 Jan. At 1:00 UT, the Earth reaches perihelion, the point in its orbit where it lies closest to the Sun at a distance of 147,100,632 km. That's about 3% closer than at aphelion in early July.

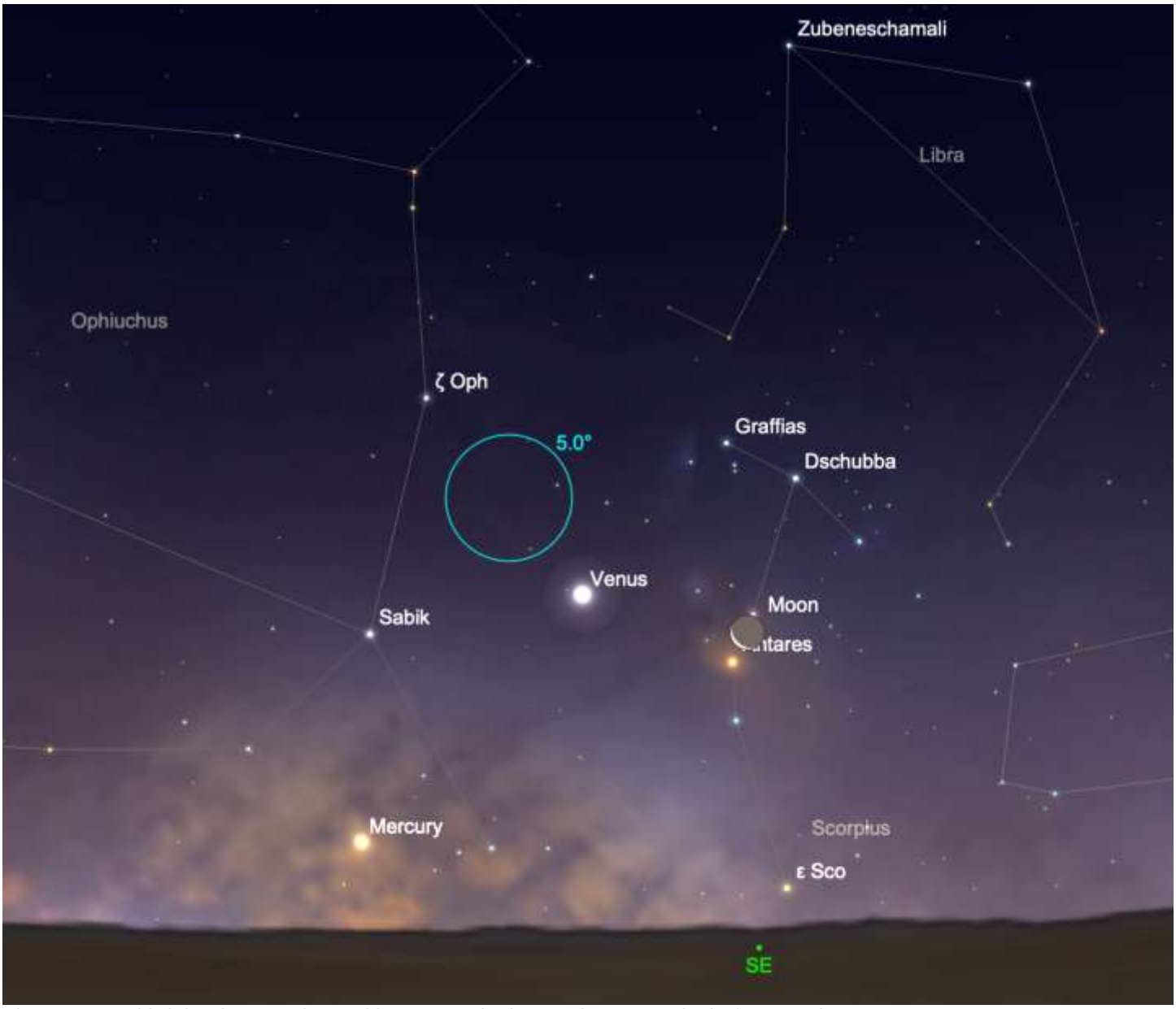
4 Jan. Last Quarter Moon, 03:30 UT



An illustration of the radiant of the Quadrantids meteor shower in the early morning hours of January 4.

3-4 Jan. The brief but sometimes intense Quadrantid meteor shower peaks. The Quadrantids average about 25-40 meteors in dark sky. The predicted time of the peak of the shower is 9h Universal Time on January 4, a time which particularly favors observers in the eastern Americas. But look anytime on the night of the 3rd and into the early morning of the 4th, especially in the morning when the radiant is higher in the sky. The Quadrantids take their name from the defunct northern constellation Quadrans Muralis. They can appear anywhere in the sky, but the radiant lies just north of the bright star Arcturus in the northeastern sky in the pre-dawn hours or just over the north-northwestern horizon after evening twilight. This year, a last-quarter Moon obscures the faintest meteors, but the Moon is located in Virgo, well away from the radiant. The Quadrantids strongly favor northern-hemisphere observers.

5 Jan. The Moon, now a fat waning crescent, follows Spica into the morning sky about 4.5° to the east.



The Moon and bright planets, along with Antares, in the southeastern sky before sunrise on January 8, 2024.

8 Jan. Rise early, put on a parka (or flip-flops if you're enjoying summer south of the equator), and look to the southeast to see Mercury and Venus join a waning crescent Moon. You need a clear view of the horizon to spot Mercury (magnitude -0.1) while Venus (magnitude -4.0) is much more prominent. The bright star Antares in Scorpius lies very close to the Moon's bright limb. Observers in central and western North America can see the Moon occult Antares in the early-morning hours, just before sunrise in the west and at sunrise in central regions. A small telescope is a big help to see this event. Detailed timing for the occultation of Antares at this link.

9 Jan. If you missed the action in the morning sky yesterday, head out and look east to see the waning crescent Moon forming a triangle with Mercury and Venus. A lovely sight in binoculars!

11 Jan. New Moon, 11:57 UT

12 Jan. Mercury reaches greatest western elongation in the morning sky about 24° from the Sun.

15 Jan. Grab your telescope and look for Neptune sitting about a degree north of the waxing crescent Moon.

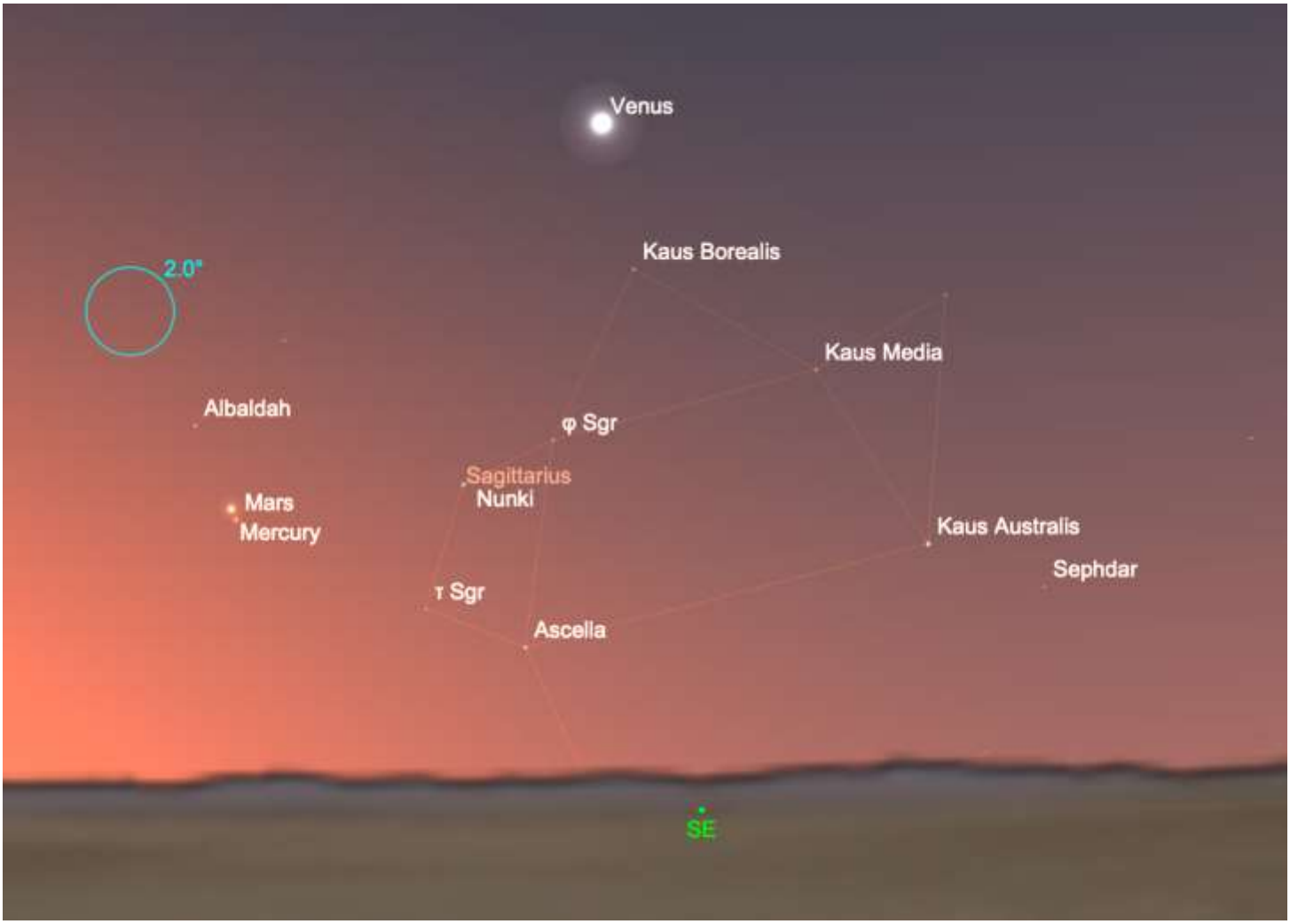
14 Jan. A thin waxing crescent Moon lies about 7° to the east of Saturn in the southwestern sky after sunset. Shining in Aquarius at 1st magnitude, Saturn's disk spans about 16", still big enough to reveal some detail in a telescope on an

evening of steady air. The planet is moving away from us now and appears to move towards the Sun each day in the coming weeks.

18 Jan. First Quarter Moon, 03:43 UT.

18 Jan. The Moon lies 3° east of Jupiter tonight. While it's well past opposition, the biggest planet still shines bright at magnitude -2.5 – you can't miss it hovering in the constellation Aries – and reveals a disk a bit more than 41" in a telescope. The planet is always worth a look when you're out with your telescope. Even a modest pair of binoculars shows its four big Galilean moons, each a unique world in its own right.

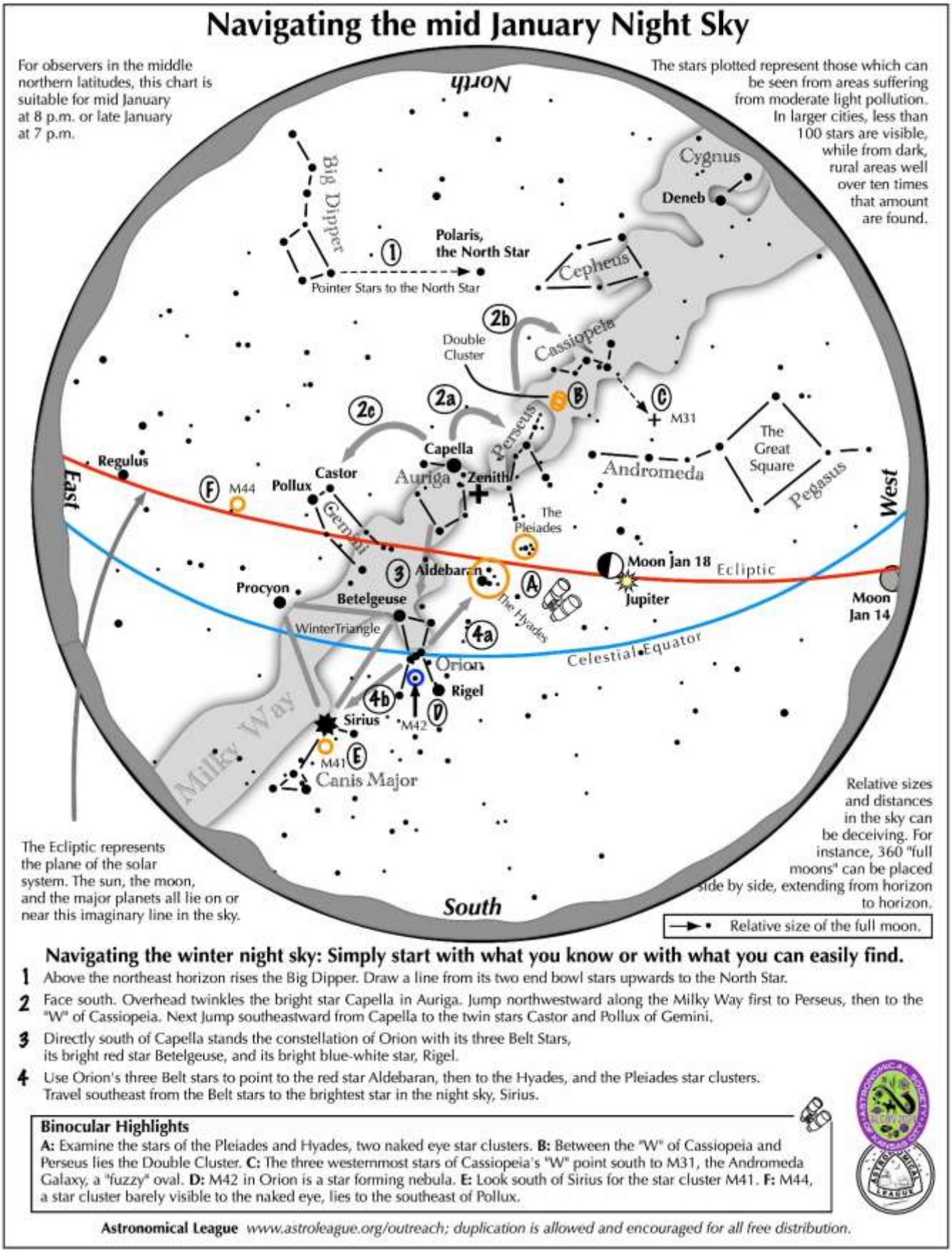
25 Jan. Full Moon, 17:54 UT



Mercury in conjunction with Mars, with Venus nearby, in the southeastern sky before sunrise on January 27, 2024.

27 Jan. Mars and Mercury make a spectacular if elusive conjunction in the southeastern morning sky today. The two planets are separated by just a quarter degree in eastern Sagittarius. At magnitude -0.2, Mercury is the brighter of the two and lies just to the north of Mars. The Red Planet shines at magnitude 1.3, about four times brighter than Mercury. You need a clear view of the horizon to see the pair, and binoculars or a small telescope help pull the two planets out of the morning twilight. Venus lies nearby, also in Sagittarius, just north of the star Kaus Borealis at the top of the 'Teapot' asterism of the constellation.

Night Sky Map



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.

NASA Night Sky Notes

This article is distributed by NASA Night Sky Network

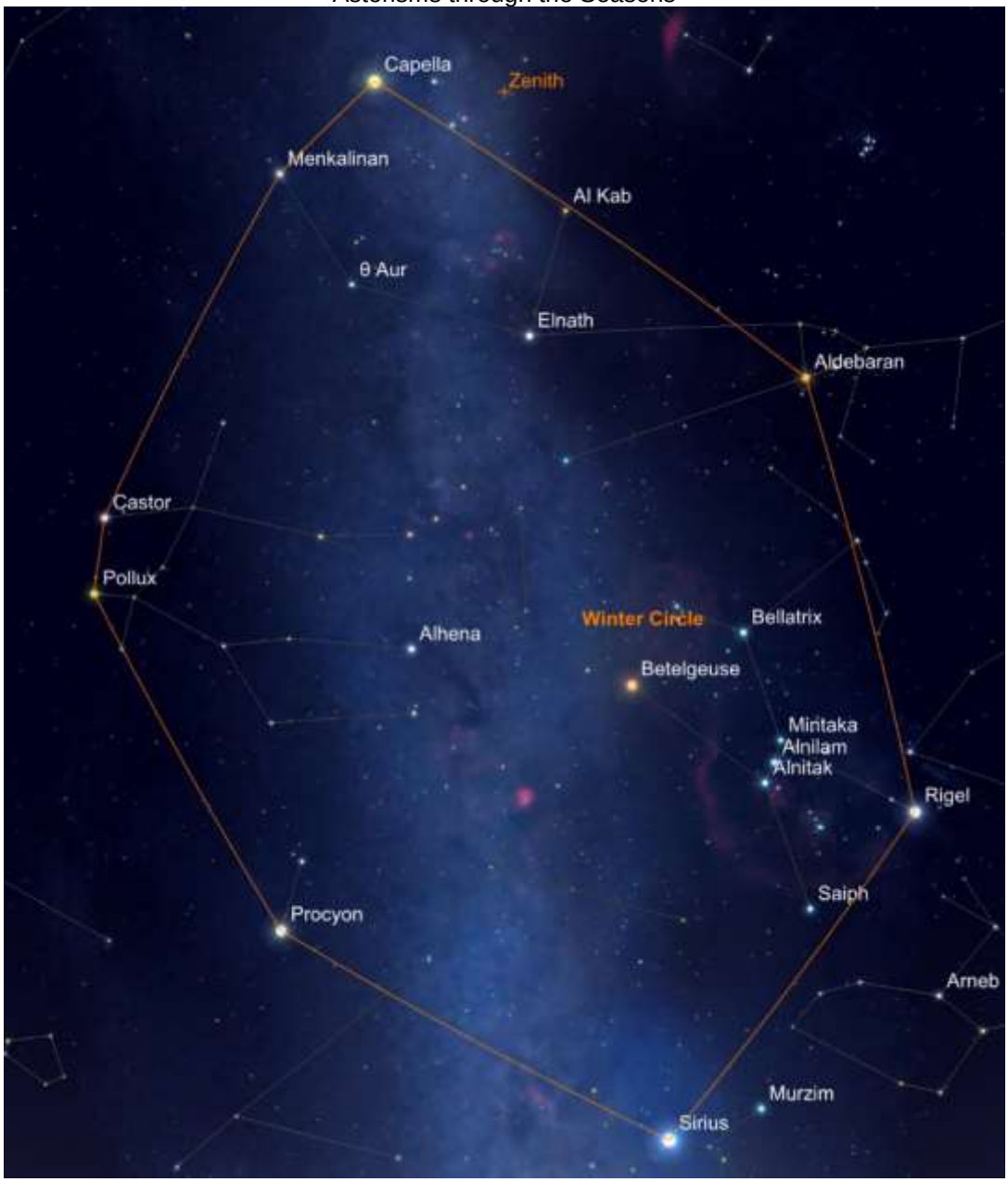
The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Connecting the 'Dots' with Asterisms

By Kat Troche

In our December Night Sky Notes, we mentioned that the Orion constellation has a distinct hourglass shape that makes it easy to spot in the night sky. But what if we told you that this is not the complete constellation, but rather, an asterism? An asterism is a pattern of stars in the night sky, forming shapes that make picking out constellations easy. Cultures throughout history have created these patterns as part of storytelling, honoring ancestors, and timekeeping. Orion's hourglass is just one of many examples of this, but did you know Orion's brightest knee is part of another asterism that spans six constellations, weaving together the Winter night sky? Many asterisms feature bright stars that are easily visible to the naked eye. Identify these key stars, and then connect the dots to reveal the shape.

Asterisms through the Seasons



Stars that make up the Winter Circle, as seen on January 1, 2024 Sky Safari

Try looking for these asterisms this season and beyond:

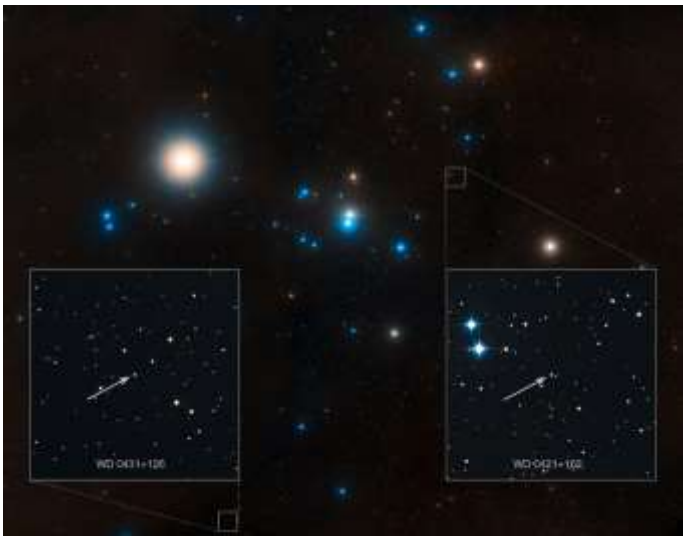
Winter Circle – this asterism, also known as the Winter Hexagon, makes up a large portion of the Winter sky using stars Rigel, Aldebaran, Capella, Pollux, Procyon, and Sirius as its points. Similarly, the **Winter Triangle** can be found using Procyon, Sirius, and Betelgeuse as points. **Orion's Belt** is also considered an asterism.

Diamond of Virgo – this springtime asterism consists of the following stars: Arcturus, in the constellation Boötes; Cor Caroli, in Canes Venatici; Denebola in Leo, and Spica in Virgo. Sparkling at the center of this diamond is the bright cluster **Coma Berenices**, or Bernice's Hair – an ancient asterism turned constellation!

Summer Triangle – as the nights warm up, the Summer Triangle dominates the heavens. Comprising the bright stars Vega in Lyra, Deneb in Cygnus, and Altair in Aquila, this prominent asterism is the inspiration behind the cultural festival Tanabata. Also found is Cygnus the Swan, which makes up the

Northern Cross asterism.

Great Square of Pegasus – by Autumn, the Great Square of Pegasus can be seen. This square-shaped asterism takes up a large portion of the sky, and consists of the stars: Scheat, Alpheratz, Markab and Algenib.



This image shows the region around the Hyades star cluster, the nearest open cluster to us. The Hyades cluster is very well-studied due to its location, but previous searches for planets have produced only one. A new study led by Jay Farihi of the University of Cambridge, UK, has now found the atmospheres of two burnt-out stars in this cluster — known as white dwarfs — to be "polluted" by rocky debris circling the star. Inset, the locations of these white dwarf stars are indicated — stars known as WD 0421+162, and WD 0431+126. NASA, ESA, STScI, and Z. Levay (STScI)

Tracing these outlines can guide you to objects like galaxies and star clusters. The Hyades, for example, is an open star cluster in the Taurus constellation with evidence of rocky planetary debris. In 2013, Hubble Space Telescope's Cosmic Origins Spectrograph was responsible for breaking down light into individual components. This observation detected low levels of carbon and silicon – a major chemical for planetary bodies. The Hyades can be found just outside the Winter Circle and is a favorite of both amateur and professional astronomers alike.

How to Spot Asterisms

Use Star Maps and Star Apps – Using star maps or stargazing apps can help familiarize yourself with the constellations and asterisms of the night sky.

Get Familiar with Constellations – Learning the major constellations and their broader shapes visible each season will make spotting asterisms easier.

Use Celestial Landmarks – Orient yourself by using bright stars, or recognizable constellations. This will help you navigate the night sky and pinpoint specific asterisms. Vega in the Lyra constellation is a great example of this.

Learn more about how to stay warm while observing this Winter with our upcoming mid-month article on the Night Sky Network page through NASA's website!

January Skies

Dick Cookman

Highlights: Comet Journal, Martian Landers, Meteor Showers, Planet Plotting, January Moon

Focus Constellations: Ursa Major, Ursa Minor, Draco, Cepheus, Cassiopeia, Camelopardalis, Lynx, Leo, Cancer, Gemini, Auriga, Taurus, Perseus, Andromeda, Pegasus, Pisces, Aries

Comet Journals
Comet C/2021 S3 (Panstarrs) is a long period 9th magnitude comet in Lupus. It will move into Scorpius by the 31st and will reach perihelion on February 14, 2024 at about 7th magnitude and will be brightest on March 1 in Serpens Cauda. It passes perigee (closest to Earth) on March 14 then heads back into outer space as in leaves the Solar System.
Comet 62P/Tsuchinsham 1 2023, a short period (6.67 years) comet at 7th magnitude in Virgo, passed through perihelion on Christmas and was closest to Earth on Dec 30. It will exit Virgo by late summer.
Comet 12P/Pons-Brooks (2024) is at 7th magnitude in Cygnus. Perihelion passage is April 21, with closest approach to Earth at 1.55 AU (232 million km) on June 2.

Mars Landers
A major Martian climate transition is proposed in the November 23, 2023 issue of Nature Astronomy "Zhang, L., Li, C., Zhang, J. et al. Buried palaeo-polygonal terrain detected underneath Utopia Planitia on Mars by the Zhurong radar. Nat Astron (2023). https://doi.org/10.1038/s41550-023-02117-3". At the top of ancient layers formed during a long warm and wet era on Mars, China's Zhurong rover found polygonal cracks at a depth of 35 meters below Utopia Planitia on Mars with ground penetrating radar. The article indicates that the cracks appear to be remnants of large scale versions of the patterned ground formed from freeze/thaw conditions found in permafrost in periglacial regions on Earth. Such extremely large cracks may have resulted from conditions more extreme than on Earth and since they were found at the low latitude of 25°N, the axial tilt of Mars may have approached 40 degrees during their formation about 3 billion years ago! The overlying 35 meter layers deposited since the polygons were formed appear to represent a significant change in climate associated with more moderate conditions characterized by short glacial events with dry and arid intervals separated by brief warmer and wetter episodes.

Meteor Showers
Quadrantid shower peaks in northeastern skies on the 4th, producing up to 25 meteors per hour in dark skies before dawn. Glare from the waning crescent Moon in the west should not interfere with views of the meteors and fireballs.

Planet Plottings
In the predawn hours in January, observers peer eastward toward the inner planets, Mercury (0.8 to -2.1) in Ophiuchus, Venus (-3.9) in Scorpius, and Mars (1.4 to 1.3) in Sagittarius. In the evening, we turn our heads westward toward the outer giant planets, Jupiter (-2.4 to -2.2) in Aries, Saturn (0.9 to 1.0) in Aquarius, Uranus (5.7) in Aries, and Neptune (7.9) in Pisces. On the 1st, Venus rises after 5:00AM, followed by Mercury and Mars before sunrise. Venus moves from Scorpius into Ophiuchus on the 6th, then is passed by the waning crescent Moon on the 8th. It joins Mercury and Mars in Sagittarius on the 20th. Mercury will be buried in the glow of sunrise for the first week of January after which the waning crescent Moon passes by on the 9th. Mercury then moves closer to Venus as it approaches greatest western elongation (24°) from the Sun on the 12th. The waning Crescent Moon passes Mars in the glow of sunrise on the 10th, then Mars rises above the Suns's glow on the 19th when it appears on the horizon a hand's width east of Mercury before sunrise. Mercury and Mars appear to get closer until the 27th when they are only 0.2° apart. Saturn and Neptune are early evening planets in the western sky. Saturn sets first and Neptune follows about an hour later. The waxing crescent Moon passes Saturn on the 14th and Neptune on the 15th. Uranus and Jupiter are high in the South after sunset and set before midnight. The waxing gibbous Moon passes Jupiter on the 18th and Uranus on the 19th.

Planet	Constellation(s)	Magnitude	Planet Passages	Time	Date
Sun	Libra, Scorpius	-26.5	New Moon	6:57AM EST	1/11
Mercury	Ophiuchus	0.5	Max West Elongation	10:00AM EST	1/12
Mercury	Sagittarius	-0.2	Mars, 0.2°S	11:00AM EST	1/27
Venus	Scorpius – Sagittarius	-3.9			
Mars	Sagittarius	1.4 to 1.3	Mercury, 0.2°N	11:00AM EST	1/27
Jupiter	Aries	-2.4 to -2.2			
Saturn	Aquarius	0.9 to 1.0			
Uranus	Aries	5.7			
Neptune	Pisces	7.9			

January Moon
January's New Moon is in Sagittarius on the 11th at 6:57AM EST. It marks the start of Lunation 1250 which ends 29.52 days later with the New Moon of February in Sagittarius on the 9th at 4:00PM MST.

The Full Moon on the 25th occurs at 12:54PM EST in Cancer. It is called the Moon after Yule or Old Moon. It was called the Wolf Moon in Medieval England. For Celts, it was the Quiet Moon and, in China, it is the Holiday Moon. Colonial Americans called it the Winter Moon.

Anishnaabe (Odawa and Ojibwe) first people respectively recognize the 1st Moon of the year as "Manidoo-Giizisoons" (Spirit Moon) in the eastern dialect and "Gichimanidoo-giizis" (Great Spirit Moon) in the western dialect. Ontario's Earth Haven Farm presents cultural teachings explaining the cycle of life and nature of Spirit Moon, the first moon of Creation which is manifested through the Northern Lights. It is a time to honour the silence and realize our place within all of Great Mystery's creatures.

Lunar Apogee (maximum lunar distance) is on January 1 at 10:28AM EST when the Moon's distance is 251,599 mi. (63.41 Earth radii). A second Lunar Apogee is on January 29 at 3:14AM EST when the Moon's distance is 252,138 mi. (63.42 Earth radii). Lunar perigee (minimum lunar distance) is on the 13th when the Moon is at 225,102 mi. (57.52 Earth radii) at 3:36AM MST
.
The waning crescent Moon appears to pass Venus on the 8th, Mercury on the 9th and Mars on the 10th. The waxing crescent passes Saturn on the 14th, and Neptune on the 15th. The waxing gibbous Moon passes Jupiter on the 18th, and Uranus on the 19th.

Planet	Constellation	Magnitude	Moon Passages	Moon Phase	Moon Age
Sun	Sagittarius	-26.8	6:57AM EST, 1/11	New	0 Days
Mercury	Ophiuchus	-0.1	7.0°S, 2:00PM EST, 1/9	Waning Crescent	27.52 Days
Venus	Ophiuchus	-3.9	6.0°S, 3:00PM EST, 1/8	Waning Crescent	26.85 Days
Mars	Sagittarius	1.4	4.0°S, 4:00AM EST, 1/10	Waning Crescent	28.40 Days
Jupiter	Aries	-2.3	3.0°N, 4:00PM EST, 1/18	Waxing Gibbous	7.38 Days
Saturn	Aquarius	1.0	2.0°S, 5:00AM EST, 1/14	Waxing Crescent	2.92 Days
Uranus	Aries	5.7	3.0°N, 3:00PM EST, 1/19	Waxing Gibbous	8.33 Days
Neptune	Pisces	7.9	0.9° S, 3:00PM EST, 1/15	Waxing Crescent	4.33 Days

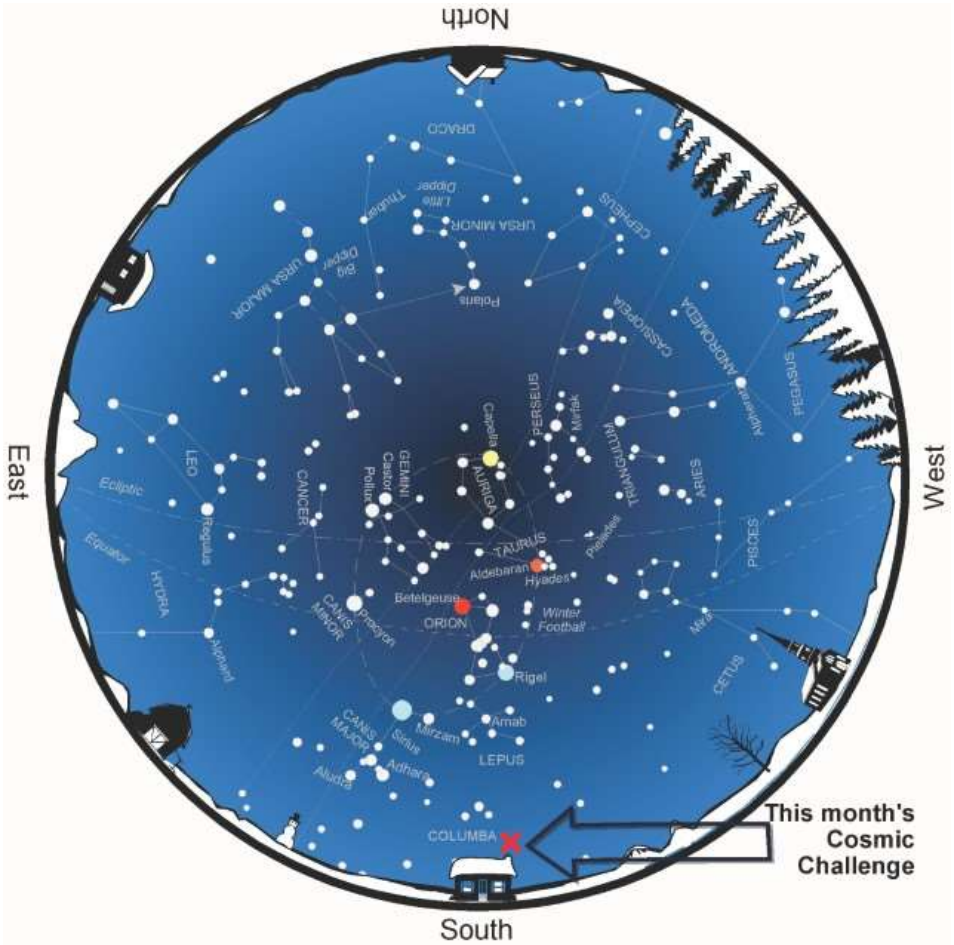
Phil Harrington's Cosmic Challenge

NGC 1851 Galaxy Group

This month's suggested aperture range:
Binoculars and 3- to 5-inch (7.6- to 13-cm) telescopes

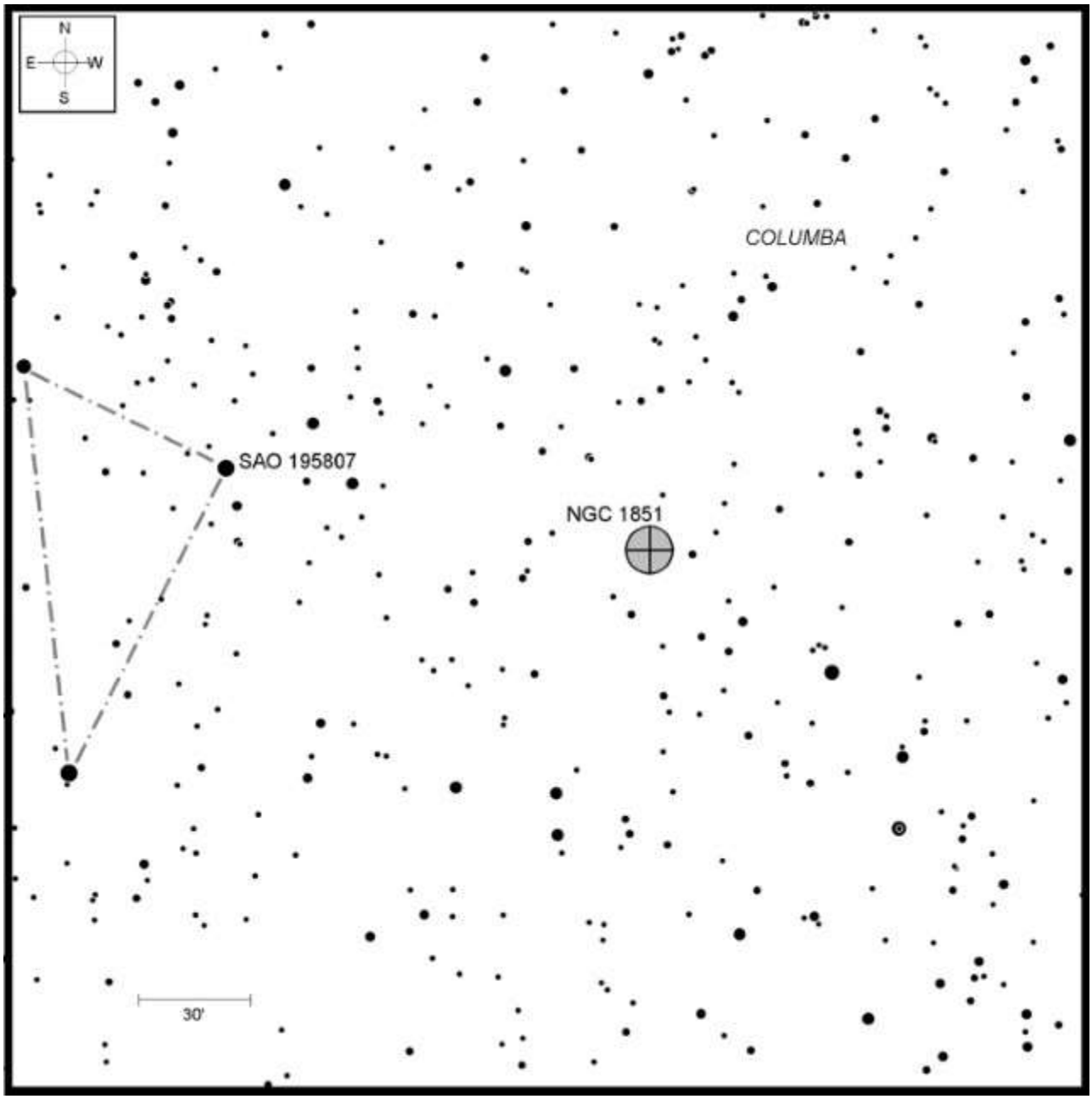
Target	Type	RA	DEC	Constellation	Magnitude	Size
NGC 1851	Globular cluster	05h 14.1m	-40° 02.8'	Columba	7.3	12'

I thought I'd welcome in the New Year with a target that is not challenging due to its faintness, but rather due to its southern location far from any bright stars. NGC 1851 is a 7th-magnitude globular cluster in the constellation Columba, the Dove.



Above: Evening star map showing the location of this month's Cosmic Challenge.

Credit: *Map adapted from* ***Star Watch*** *by Phil Harrington*



Above: Finder chart for this month's Cosmic Challenge.

Credit: *Chart adapted from* ***Cosmic Challenge*** *by Phil Harrington*
Click on the chart to open a printable PDF version in a new window

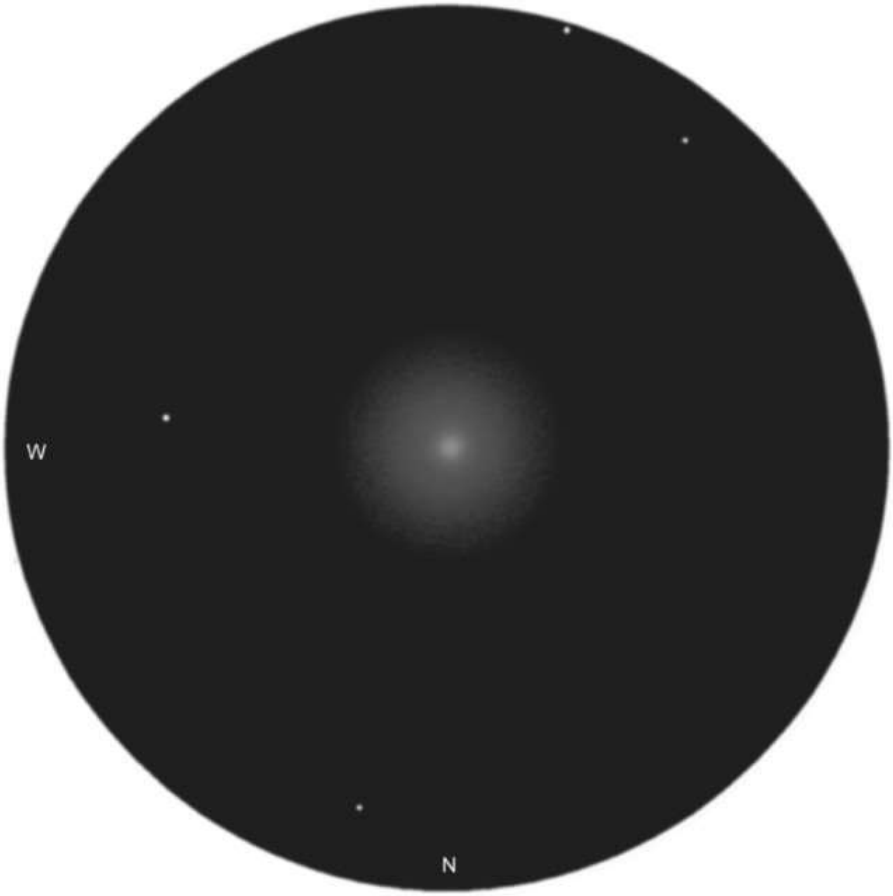
Depending on your latitude, the toughest test may be finding a clear enough view to the south to spot it. NGC 1851 is located some 40° south of the celestial equator. As a result, it never crests more than 20° above the southern horizon from most of North America. That's undoubtedly why it was missed by Messier and the Herschels. NGC 1851 was first discovered by James Dunlop, a Scottish astronomer based in Australia on May 29, 1826.

Our southern hemisphere colleagues remark that they easily see NGC 1851 through 10x50 binoculars and that it is one of the showpieces of January and February skies. Our view up north, however, is hampered by horizon-hugging haze and light pollution. The result is merely a dim glimmer of the globular's true self.

The easiest way that I have found to locate Columba is to imagine a large equilateral triangle between Rigel, Sirius, and the dove's brightest star, Phact [Alpha (α) Columbae]. Each is separated from the others by between 23° and 26°. Aim your binoculars or finderscope at Phact, and then look to its southeast for Wazn [Beta (β) Columbae] and to its southwest for Epsilon (ε) Columbae. Shifting about a field due south of Epsilon should bring a right triangle of three 6th-magnitude

stars into view. The star at the triangle's right angle, SAO 195807, glows with a reddish tinge and is a little less than 2° to the east-northeast of NGC 1851.

NGC 1851 is a globular for all telescopes and all magnifications. At 45x, my 4-inch (10.2-cm) refractor reveals an unresolved, nebulous glow punctuated by a brighter, almost starlike central core. In many ways, it resembles the coma of a tailless comet. But then, increase the magnification and that allusion begins to change. At 143x, the edges of the cluster begin to take on a graininess, as if on the brink of resolution. A 4-inch (10.2 cm) scope doesn't have quite enough oomph to take that final step, but upping the aperture just 2 inches (5 cm) will show some of NGC 1851's 13th-magnitude stars around its fringe.



NGC 1851 also challenges theories about globular cluster formation. Globulars typically consist of stars of similar ages, suggesting a common formation period. NGC 1851, however, challenges this trend by exhibiting stellar populations of varying ages. Additionally, the cluster is surrounded by a diffuse halo of stars. The exact origins of these features remain uncertain, but one hypothesis posits that NGC 1851 could be the result of the collision between two clusters within a dwarf galaxy. Following the merger, interactions with more massive galaxies may have stripped away the outer regions of the original host galaxy, leaving behind only the stellar nucleus and the observed halo. To learn more about this atypical globular, read the study The Halo+Cluster System of the Galactic Globular Cluster NGC 1851 by A.F. Marino, et al, published in the Monthly Notices of the Royal Astronomical Society, June 28, 2014.

Have a favorite challenge object of your own? I'd love to hear about it, as well as how you did with this month's challenge. Contact me through my website or post to this month's discussion forum.

Important Links and Information

If you follow this link, https://in-the-sky.org/newscal.php and then scroll down and click the iCalendar link, you can sync a full year of various astronomical events with either your outlook, google, or apple calendars.

For the current Moon calendar https://www.mooninfo.org/world/united-states/100911/moon-calendar-for-twin-falls.html

Visit https://saberdoesthe...does-the-stars/ for tips on spotting extreme crescent Moons and https://curtrenz.com/moon.html for Full Moon and other lunar data.

Go to https://skyandtelesc...ads/MoonMap.pdf and https://celestron-si...RReeves-web.pdf and https://nightsky.jpl...ObserveMoon.pdf for simple lunar maps.

Click on https://astrostrona.pl/moon-map/ for an excellent online lunar map.

Visit http://www.ap-i.net/avl/en/start to download the free Virtual Moon Atlas.

Consult http://time.unitariu...moon/where.html for current information on the Moon and https://www.fourmila.../lunarform.html for information on various lunar features.

See https://svs.gsfc.nasa.gov/5048 a lunar phase and libration calculator and https://quickmap.lro...2vIBvAXwF1SizSg for the Lunar Reconnaissance Orbiter Camera (LROC) Quickmap.

Click on https://www.calendar...endar/2024/January for a lunar phase calendar for this month. Times and dates for the lunar crater light rays predicted to occur this month are available at http://www.lunar-occ...o/rays/rays.htm

For information on the planets and how to locate them, browse http://www.nakedeyeplanets.com/

Summaries on the planets: https://earthsky.org..._eid=9e4b41969c

The graphic at https://www.timeandd...lanets/distance displays the apparent and comparative sizes of the planets, along with their magnitudes and distances, for a given date and time.

The rise and set times and locations of the planets can be determined here: https://www.timeandd...stronomy/night/

Click on http://www.asteroido.../2023_06_si.htm for information on asteroid occultation's taking place this month. See https://www.curtrenz.../asteroids.html for additional information on a number of asteroids.

Visit http://cometchasing.skyhound.com/ and http://www.aerith.ne...t/future-n.html and https://cobs.si/ for additional information on this and other comets visible this month.

A list of the closest approaches of comets to the Earth is posted at http://www.cometogra.../nearcomet.html

A wealth of current information on solar system celestial bodies is posted at http://www.curtrenz.com/astronomy.html and http://nineplanets.org/

Information on the celestial events transpiring each week can be found at https://stardate.org/nightsky and http://astronomy.com/skythisweek and http://www.skyandtel...ky-at-a-glance/

Free star maps for June can be downloaded at http://www.skymaps.com/downloads.html and https://www.telescop...thly-Star-Chart and http://www.kenpress.com/index.html

Data on current supernovae can be found at http://www.rochester...y.org/snimages/

Finder charts for the Messier objects and other deep-sky objects are posted at https://freestarcharts.com/messier and https://freestarcharts.com/ngc-ic and http://www.cambridge..._april-june.htm

Telrad finder charts for the Messier Catalog are posted at http://www.custerobs...cs/messier2.pdf and http://www.star-shin...ssierTelrad.htm

Telrad finder charts for the SAC's 110 Best of the NGC are available at https://www.saguaroa...k110BestNGC.pdf

Information pertaining to observing some of the more prominent Messier galaxies can be found at http://www.cloudynig...ur-astronomers/

Author Phil Harrington offers an excellent freeware planetarium program for binocular observers known as TUBA (Touring the Universe through Binoculars Atlas), which also includes information on purchasing binoculars, at http://www.philharrington.net/tuba.htm

Stellarium and Cartes du Ciel are two excellent freeware planetarium programs that are available at http://stellarium.org/ and https://www.ap-i.net/skychart/en/start

Deep-sky object list generators can be found at http://www.virtualcolony.com/sac/ and https://telescopius.com/ and http://tonightssky.com/MainPage.php

Freeware sky atlases can be downloaded at http://www.deepskywa...-atlas-full.pdf and https://www.cloudyni...ar-charts-r1021 and https://allans-stuff.com/triatlas/

Information on passes of the ISS, the X-37B, the Tiangong, the HST, the BlueWalker 3, Starlink, and other satellites can be found at https://www.heavens-above.com/

One hundred and five binary and multiple stars for January: Omega Aurigae, 5 Aurigae, Struve 644, 14 Aurigae, Struve 698, Struve 718, 26 Aurigae, Struve 764, Struve 796, Struve 811, Theta Aurigae (Auriga); Struve 485, 1 Camelopardalis, Struve 587, Beta Camelopardalis, 11 & 12 Camelopardalis, Struve 638, Struve 677, 29 Camelopardalis, Struve 780 (Camelopardalis); h3628, Struve 560, Struve 570, Struve 571, Struve 576, 55 Eridani, Struve 596, Struve 631, Struve 636, 66 Eridani, Struve 649 (Eridanus); Kappa Leporis, South 473, South 476, h3750, h3752, h3759, Beta Leporis, Alpha Leporis, h3780, Lallande 1, h3788, Gamma Leporis (Lepus); Struve 627, Struve 630, Struve 652, Phi Orionis, Otto Struve 517, Beta Orionis (Rigel), Struve 664, Tau Orionis, Burnham 189, h697, Struve 701, Eta Orionis, h2268, 31 Orionis, 33 Orionis, Delta Orionis (Mintaka), Struve 734, Struve 747, Lambda Orionis, Theta-1 Orionis (the Trapezium), Theta-2 Orionis, Iota Orionis, Struve 750, Struve 754, Sigma Orionis, Zeta Orionis (Alnitak), Struve 790, 52 Orionis, Struve 816, 59 Orionis, 60 Orionis (Orion); Struve 476, Espin 878, Struve 521, Struve 533, 56 Persei, Struve 552, 57 Persei (Perseus); Struve 479, Otto Struve 70, Struve 495, Otto Struve 72, Struve 510, 47 Tauri, Struve 517, Struve 523, Phi Tauri, Burnham 87, Xi Tauri, 62 Tauri, Kappa & 67 Tauri, Struve 548, Otto Struve 84, Struve 562, 88 Tauri, Struve 572, Tau Tauri, Struve 598, Struve 623, Struve 645, Struve 670, Struve 674, Struve 680, 111 Tauri, 114 Tauri, 118 Tauri, Struve 730, Struve 742, 133 Tauri (Taurus)

Notable carbon star for January: R Leporis (Hind's Crimson Star)

Seventy deep-sky objects for January: B26-28, B29, M36, M37, M38, NGC 1664, NGC 1778, NGC 1857, NGC 1893, NGC 1907, NGC 1931 (Auriga); IC 361, Kemble 1 (Kemble's Cascade asterism), NGC 1501, NGC 1502, NGC 1530, NGC 1569 (Camelopardalis); NGC 1507, NGC 1518, NGC 1531, NGC 1532, NGC 1535, NGC 1537, NGC 1600, NGC 1637, NGC 1659, NGC 1700 (Eridanus); IC 418, M79, NGC 1832, NGC 1888, NGC 1964 (Lepus); B33, Cr65, Cr69, Cr70, IC 434, M42, M43, M78, NGC 1662, NGC 1973-75-77, NGC 1981, NGC 1999, NGC 2022, NGC 2023, NGC 2024, NGC 2112 (Orion); Be11, NGC 1491, NGC 1496, NGC 1499, NGC 1513, NGC 1528, NGC 1545, NGC 1548, NGC 1579, NGC 1582, NGC 1605, NGC 1624 (Perseus); DoDz3, DoDz4, M1, Mel 25, NGC 1514, NGC 1587, NGC 1647, NGC 1746, NGC 1807, NGC 1817 (Taurus)

Top ten binocular deep-sky objects for January: Cr65, Kemble 1, M36, M37, M38, M42, NGC 1528, NGC 1647, NGC 1746, NGC 1981

Top ten deep-sky objects for January: M1, M36, M37, M38, M42, M43, M78, M79, NGC 1501, NGC 2024

Challenge deep-sky object for January: IC 2118 (Eridanus)

The objects listed above are located between 4:00 and 6:00 hours of right ascension.

The Ring Nebula from Webb and Hubble Credit: NASA, ESA, CSA, JWST, HST; Processing: Zi Yang Kong, Go Webb!

Magic Valley Astronomical Society
550 Sparks St.
Twin Falls, ID

The Magic Valley Astronomical Society (MVAS) was founded in 1976. The Society is a non-profit [501(c) 3] educational and scientific organization dedicated to bringing together people with an interest in astronomy.

In partnership with the Centennial Observatory, Herrett Center, College of Southern Idaho - Twin Falls; we hold regularly scheduled monthly meetings and observation sessions, at which we share information on current astronomical events, tools and techniques for observation, astrophotography, astronomical computer software, and other topics concerning general astronomy. Members enthusiastically share their telescopes and knowledge of the night sky with all who are interested. In addition to our monthly public star parties we hold members only star parties at various locations throughout the Magic Valley.

MVAS promotes the education of astronomy and the exploration of the night sky along with safe solar observing through our public outreach programs. We provide two types of outreach; public star parties and events open to anyone interested in astronomy, and outreach programs for individual groups and organizations (e.g. schools, churches, scout troops, company events, etc.), setting up at your location. All of our outreach programs are provided by MVAS volunteers at no cost. However, MVAS will gladly accept donations. Donations enable us to continue and improve our public outreach programs.

Membership is not just about personal benefits. Your membership dues support the work that the Magic Valley Astronomical Society does in the community to promote the enjoyment and science of astronomy.
Speakers, public star parties, classes and support for astronomy in schoolrooms, and outreach programs just to name a few of the programs that your membership dues support.

Annual Membership dues will be:
$20.00 for individuals, families, and $10.00 for students.
Contact Treasurer Jim Tubbs for dues information via e-mail: jtubbs015@msn.com

Donations to our club are always welcome and are even tax deductible. Please contact a board member for details.
Lending Telescopes: The society currently has three telescopes for loan and would gladly accept others please contact President Robert Mayer, for more information on these and other benefits.

Telescopes are an individual thing and not practical for public use. However, everyone should have the experience of a good look at the moon for at least 5 minutes in their life time. It is a dimension and feeling that is unexplainable. Pictures or TV can't give this feeling, awareness, or experience of true dimension. A person will not forget seeing our closest neighbor, the moon.

Norman Herrett in a letter to Dr. J. L. Taylor, president of the College of Southern Idaho, Twin Falls, ID, USA.