Snake River Skies

The Monthly Newsletter of the Magic Valley Astronomical Society

October 2023

Membership Meeting
October 14th 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

President's Message

Hi Everyone:

Happy November and Thanksgiving. First and foremost this month is our annual elections. Where I have been honored to serve as your president the past two years, it's necessary for me to step down. Sorry, but health issues have limited what I can do.

As usual, our meeting is set for Saturday the 11th at 7pm at the Herrett Ctr library. Please consider any nominations you might have for president and/or board members for 2024. Our scheduled speaker will be David Olsen, our newsletter editor. He'll be discussing current space missions.

I want to say thank you again for those of you who participated in The Annular Eclipse which recently concluded. Several of you posted pictures and comments, which were greatly appreciated.

Have a great month, another great time for observing and imaging our beautiful Idaho skies.

Cheers and best to you, Gary Leavitt, MVAS President

Addendum: Because the newsletter is late, the elections were held.

President: OPEN
Vice-President: Dr. Jay Hartwell
Secretary: Rick Hull
Treasurer: Jim Tubbs

Please someone step-up and be the president.

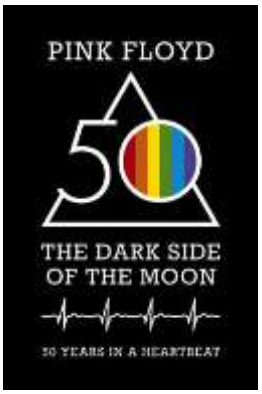
Centennial Observatory and Faulkner Planetarium Events

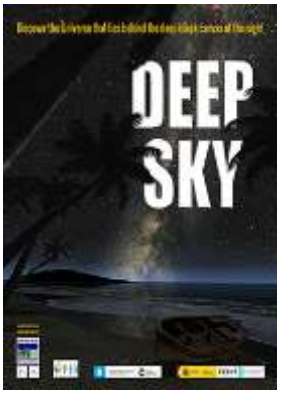
Observatory Upcoming Events
All events are weather permitting.

Event	Place	Date	Time	Admission
Telescope Tuesday	Centennial Observatory	Tuesday, November 14th, 2023	6:00 to 9:00 PM	$1.50 or free with Faulkner Planetarium admission
Telescope Tuesday	Centennial Observatory	Tuesday, November 28th, 2023	5:45 to 9:00 PM	$1.50 or free with Faulkner Planetarium admission

Faulkner Planetarium Shows
For the full schedule and times visit!

Now Showing!





Visit the Herrett Center Video Vault

The Night Sky This Month – November 2023

The James Webb Space Telescope's NIRCam imager captured this composite image of Jupiter showing bright auroras at the poles. The planet's rings and two of its moons, Amalthea and Adrastea, are also visible. Image credit: NASA, ESA, CSA, Jupiter ERS Team; image processing by Ricardo Hueso (UPV/EHU) and Judy Schmidt.

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

November offers deep-sky observers lots of open star clusters in Cassiopeia and Perseus, and plenty more galaxies in Pegasus, Sculptor, and Andromeda. Orion rises late in the evening and dominates the southern sky after midnight, while the stars of northern spring rise before dawn. The bright planets Jupiter and Saturn lie in the evening sky while Venus enlightens the morning sky in the east. And two meteor showers (or three depending on how you count them) liven up the November skies. Here's what to see in the night sky this month.

A Taurid fireball photographed on Oct. 28, 2005, by Hiroyuki Iida of Toyama, Japan.

2 November 2023. Jupiter reaches opposition, rising in the east as the sun sets in the west. The planet lies at a distance of about 596 million kilometres today. Jupiter shines at a dazzling magnitude -2.9 tonight, brighter than anything else in the night sky except for the Moon and Venus. Its disk spans nearly 50″. The big planet lies 13.5° north of celestial equator, ideal for northern observers but still reasonably placed for those in the southern hemisphere. Jupiter's four largest moons – the Galilean moons – are also at their brightest and largest near opposition, and all four resolve into tiny disks in a telescope at moderate magnification. Jupiter stays well positioned for viewing for the rest of the year as it moves into the evening sky. Learn more about how to observe Jupiter here…

2 Nov. Look east-northeast just before midnight to see a waning gibbous Moon rising in a triangle with Castor and Pollux in Gemini.

4 Nov. Saturn reaches its second stationary point in Aquarius and resumes its prograde (west to east) motion against the stars from night to night.

5 Nov. Last Quarter Moon, 08:37 UT

5 Nov. Most of North America sets the clocks back to Standard Time – which means you get to enjoy an extra hour of stargazing!

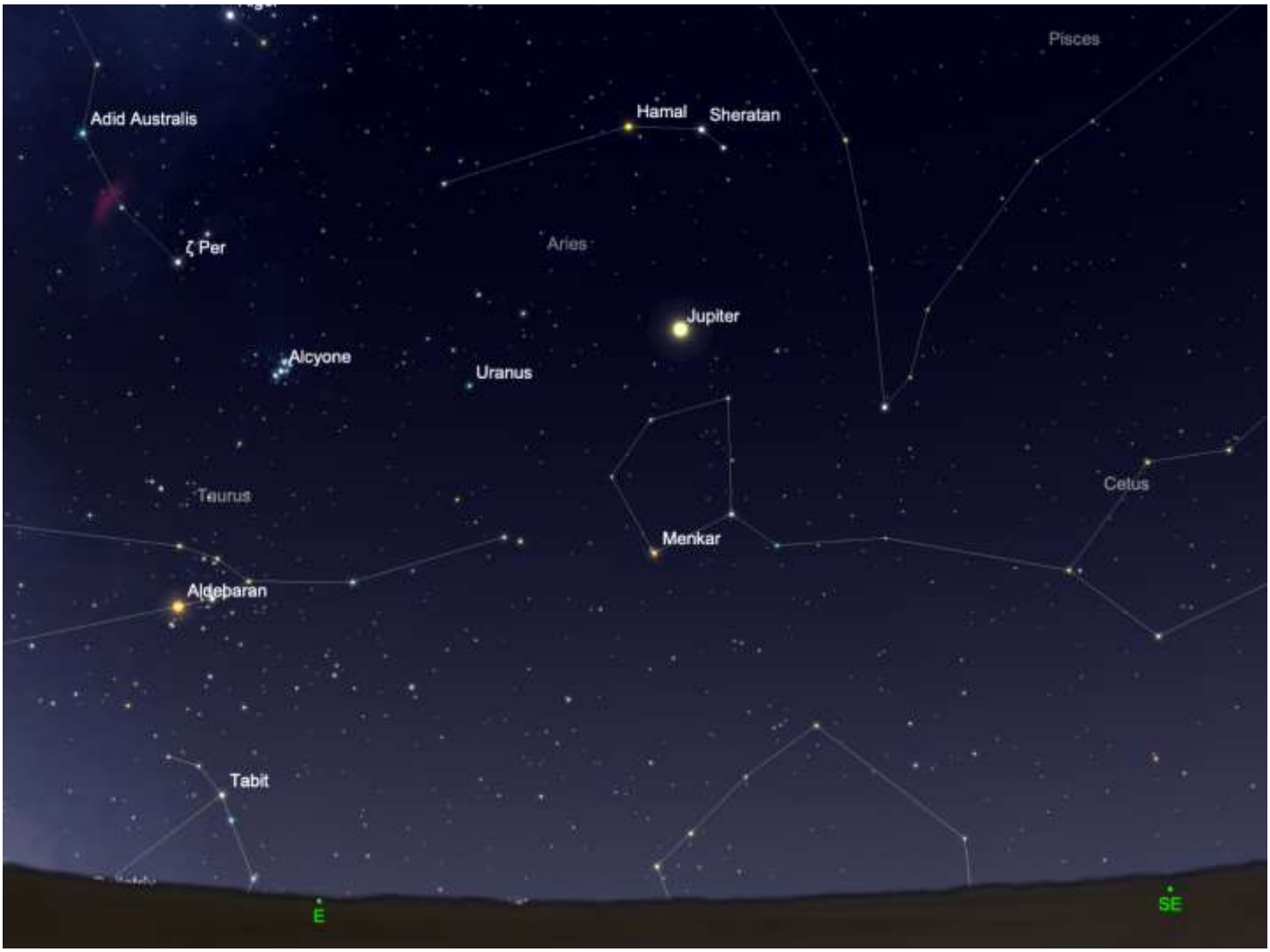
6 Nov. As dawn arrives, look for a slender crescent Moon about 5° from the star Regulus. Brilliant Venus (magnitude -4.3) lies nearby. In a telescope, the 21" wide disk of Venus appears in a gibbous phase and it shows a much higher surface brightness than our Moon. (The Moon, while it appears bright, is a dark object, about as dark as asphalt while the cloud tops of Venus are much more reflective.)

6-12 Nov. The Taurid meteor showers peak this week with not much Moon around to obscure the view. There are two, the Northern and Southern Taurids, and they both peak in late October through mid-November. They're sometimes called the Halloween Fireballs. You can see these bright, slow-moving fireballs in the northern and southern hemispheres at essentially any time of night. This event usually shows 5-10 meteors an hour, although some predictions suggest more plentiful meteors this year.

9 Nov. Much of the world sees Venus make a very close approach – less than a degree – from a waning crescent Moon in the early-morning sky. But observers in much of Europe can enjoy – with a telescope – a daytime lunar occultation of the planet. The timing of the event for dozens of cities are found at this link.

11 Nov. A thinning crescent Moon lies near Spica low in the eastern sky before sunrise.

13 Nov. New Moon, 09:27 UT



Uranus lies between Jupiter and the Pleiades in the constellation Aries as it reaches opposition on Nov. 13, 2023.

13 Nov. Uranus reaches opposition as it rises in the east as the Sun sets in the west. This distant ice giant lies just at the edge of naked-eye visibility at magnitude +5.7 with a disk that spans about 3.7″. You can see it in Aries about halfway between Jupiter and the Pleiades. Uranus remains visible through the end of 2023 and into the new year in this part of the sky. If you have dark sky, try to see the planet without optics. Although the planet was plainly, though not easily, visible to pre-telescopic stargazers, it wasn't 'discovered' until William Herschel found it with a 6" telescope on March 13, 1781. For an even bigger challenge – try to find some or all of the bright Moons of Uranus with the help of this handy-dandy moon finder at *Sky&Telescope*.

18 Nov. Mars finally reaches conjunction with the Sun. It will slowly reappear west of the Sun in the morning sky in the coming weeks.

18-21 Nov. The Leonid meteor shower has been quiet these past many years and it remains a modest shower despite some historical outbursts. The shower occurs as the Earth passes through the path of the periodic Comet 55/P Tempel-Tuttle. A peak of 15 meteors per hour is typical for the Leonids. But nothing's assured and a few extras may arrive. Leonids can appear anywhere in the sky but appear to trace their paths back to a radiant in the 'Sickle' of Leo.

20 Nov. First Quarter Moon, 10:50 UT

The Moon and Saturn lies in Aquarius on Nov. 20, 2023.

20 Nov. The Moon lies about 5° from Saturn in the southwestern sky after sunset. The ringed planet is slowly shrinking and its ring plane is closing, but the planet is always worth a look in a telescope. Saturn shines today at magnitude +0.8 and its disk spans about 17".

22 Nov. Neptune lies about 1.5° north of the Moon.

27 Nov. Full Moon, 09:16 UT

Brian Ventrudo, Publisher, Cosmic Pursuits

November Skies

Dick Cookman

Highlights: Comet Journal, Martian Landers, Meteor Showers, Planet Plotting, November Moon
Focus Constellations: Ursa Major, Ursa Minor, Draco, Cepheus, Cassiopeia, Camelopardalis, Lynx, Auriga, Taurus, Perseus, Andromeda, Pegasus, Cygnus

Comet Journals
Ptolemy, one of the most influential Greek astronomers and geographers of his time, propounded the geocentric theory in a form that prevailed for 1400 years. He was born about 85 AD which was when Comet C/2023 H2 (Lemmon) started its long inward journey to the Sun. The comet recently passed through perihelion on October 29 and was at perigee (closest to Earth) on November 1. It streaks southeasterly from Bootes in the northwestern skies through Capricornus in the 1st three weeks of November after which it drops into southern hemisphere skies. It may reach 7th magnitude during the first two weeks of the month.

Comet 103P/Hartley is a nice sight at 7th to 8th magnitude in larger (50+mm) binoculars, or small (3 to 4in.) diameter telescopes. It is circling counterclockwise below Cancer in November. It was closest to Earth on September 26 and reached perihelion on October 12. It is a regular visitor as it circuits back and forth between the Sun and Jupiter every 6.46 years.

Martian Landers
The Mars Curiosity rover has reached the sulfate bearing layers as it ascends Mt. Sharp in Gale Crater. These layers were formed as the lake (sea?) which once filled the crater dried up. The rovers investigating Martian geologic history have gathered copious evidence that Mars once had conditions favorable for life, will the sulfate layers provide direct evidence for ancient life? The Perseverance rover and its Ingenuity scout are exploring the delta on the edge of Jezero Crater. They ascended the outer edge of the delta, crossed the fine grained sedimentary rocks on the periphery, the coarser grained rocks and boulders closer to the craters edge, and are now approaching the carbonate bearing rocks adjacent to the inner edge of the crater. Carbonates often form by precipitation from lake or sea water, but formation of some carbonate rocks involves the intervention of life forms which are sometimes preserved in the rock as fossils. Both rovers are preparing for when they will be out of communication with Earth during the upcoming solar conjunction.

Meteor Showers
The Leonid meteor shower peaks on the 17th and 18th. It is traditionally one of the better meteor showers of the year, occurring when we orbit through the debris trail from previous passages of Comet 55P/ Tempel-Tuttle. The shower emanates from the tail of Leo which rises about midnight EST. The shower is best viewed long after the waxing crescent Moon has set and slightly before morning twilight when eastern USA is orbiting head first into the trail of comet debris. In 2023, the Alpha Monocerotids may be better. Look to the southern hemisphere skies.

November 18, 4AM: Leonids. Active November 15 – 25. Radiant 10h12m +22°. ZHR 15 to storm. 71 km/sec. favorable – Waxing Crescent Moon. Progenitor: Comet 55P/ Tempel-Tuttle

November 22, 4AM: Alpha Monocerotids. Active November 15 – 25. Radiant 07h48m +01°. ZHR 5-400. 65 km/sec. favorable – Waxing Crescent Moon. Progenitor:

Planet Plottings
Venus (-4.2 to -4.1 in Leo and Virgo, and Uranus (+5.6) and Jupiter (-2.8 to -2.7) in Aries are morning planets. Before sunrise on the 1st, Venus rises 4 hours before the Sun and moves from Leo to Virgo on the 3rd. On the 9th, the waning crescent Moon passes Venus at 4:00AM EST. Jupiter and Uranus are at their brightest during their oppositions at 1:00AM EDT on the 3rd and noon EST on the 13th respectively. The waxing gibbous Moon passes Jupiter on the morning of the 25th and Uranus on the afternoon of the 26th.
Uranus and Jupiter are also evening planets in the eastern sky. Neptune (7.8 to 7.9) in Pisces and Saturn (0.7 to 0.9) in Aries are high in the southeast and south. Mercury (-0.7 to -0.4) in Libra, Scorpius, Ophiucus, and Sagittarius is buried in the glow of sunset in early November but may be visible southeast of the waxing crescent Moon on the evening of the 14th. The waxing gibbous Moon passes Saturn on the 20th and Neptune on the 22nd.

Planet chart on next page.

Planet	Constellation(s)	Magnitude	Planet Passages	Time	Date
Sun	Libra, Scorpius	-26.5	New Moon	4:27AM EST	11/13
Mercury	Libra, Scorpius, Sagittarius	-0.7 to -0.4			
Venus	Leo, Virgo	-4.2 to -4.1			
Mars	Libra, Scorpius	1.5 to 1.4	Solar Conjunction	1:00AM EST	11/18
Jupiter	Aries	-2.8 to -2.7	Solar Opposition	1:00AM EDT	11/3
Saturn	Aquarius	0.7 to 0.9			
Uranus	Aries	5.6	Solar Opposition	Noon EST	11/13
Neptune	Pisces	7.8 to 7.9			

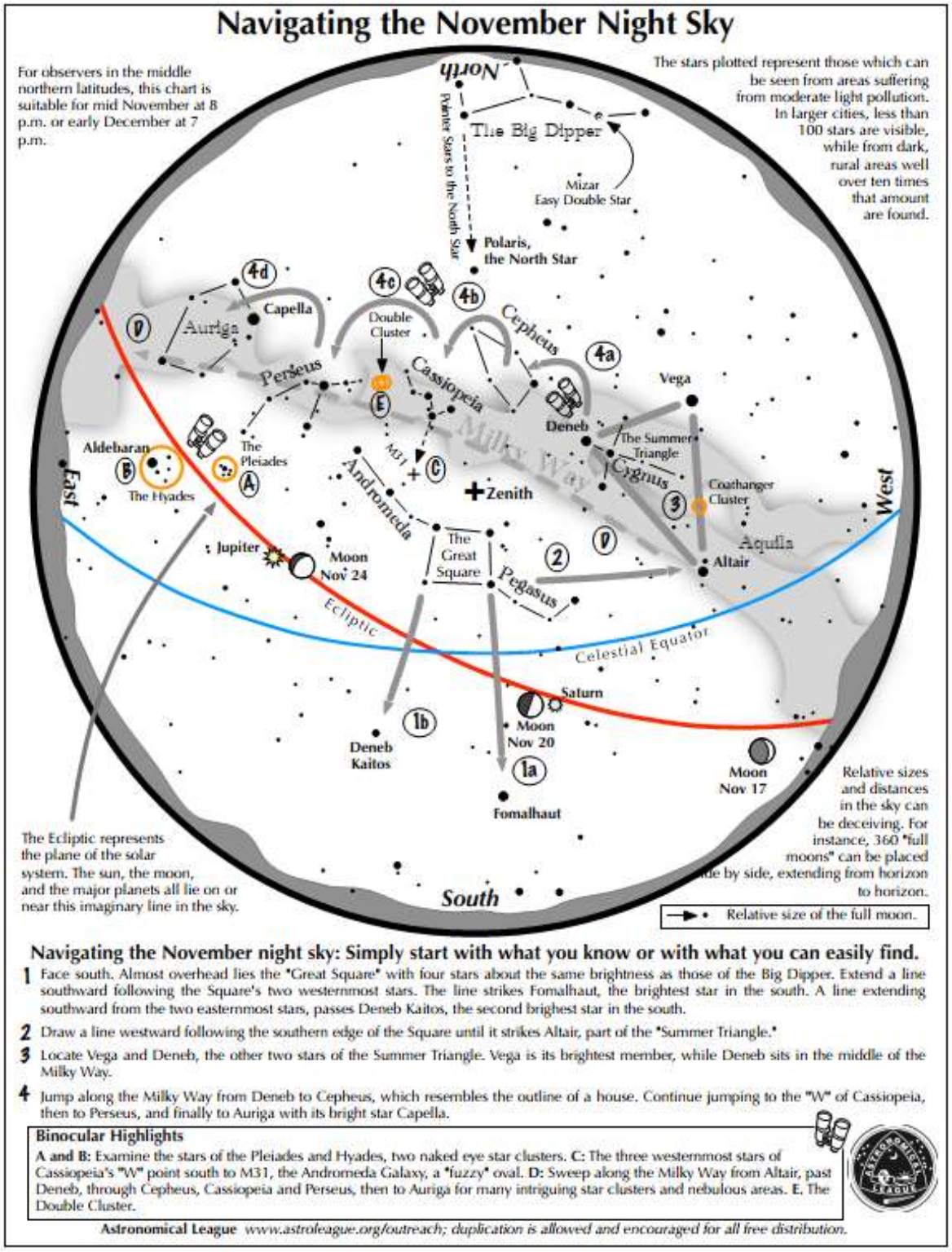
November Moon

The New Moon of November is in Libra on the 13th at 4:27AM EST. The New Moon marks the start of Lunation 1248 which ends 29.09 days later with the New Moon of December in Sagittarius on the 12th at 6:31PM EST.
The Full Moon on the 27th occurs at 4:16AM EST in Taurus. It is called the Frosty or Beaver Moon. It was called the Snow Moon in Medieval England. For Celts, it was the Dark Moon and, in China, it is the White Moon. Colonial Americans called it the Beaver Moon. Eastern and western dialect Anishnaabe (Odawa and Ojibwe) first people respectively recognize the 11th Moon of the year as “Gashkadino-Giizis or Baashkaakodin-Giizis” (Freezing Over Moon).
Ontario’s Earth Haven Farm presents cultural teachings explaining the cycle of life and nature of November’s Grandmother Moon of Creation: “The eleventh moon of Creation is the Freezing Moon, a time when the Star Nation is closest to us. As every creature being prepares for the coming fasting grounds, we are reminded to prepare ourselves for our spiritual path by learning the sacred teachings and songs that will sustain us.”

Lunar Apogee (maximum lunar distance) is on November 6 at 4:49PM EST when the Moon’s distance is 251,388 mi. (63.43 Earth radii). Lunar perigee is on the 21st when the Moon is at 229,795 mi. (57.98 Earth radii) at 4:01PM EST.
The waning crescent Moon appears to pass Venus on the 9th. The waxing crescent passes Mars on the 13th and Mercury on the 14th. The waxing gibbous Moon passes Saturn on the 20th, Neptune on the 22nd, Jupiter on the 25th, and Uranus on the 26th.

Planet	Constellation	Magnitude	Moon Passages	Moon Phase	Moon Age
Sun	Libra	-26.8	4:27AM EST, 11/13	New	0 Days
Mercury	Scorpius	-0.4	1.55°S, 9:04AM EST, 11/14	Waxing Crescent	1.19 Days
Venus	Virgo	-4.4	1.0°N, 4:00AM EST, 11/9	Waning Crescent	25.59 Days
Mars	Libra	1.5	2.35°S, 6:18AM EST, 11/13	Waxing Crescent	0.08 Days
Jupiter	Aries	-2.8	3.0°N, 6:00AM EST, 11/25	Waxing Gibbous	12.06 Days
Saturn	Aquarius	0.8	3.0°S, 9:00AM EST, 11/20	Waxing Gibbous	7.19 Days
Uranus	Aries	5.6	3.0°N, 4:00PM EST, 11/26	Waxing Gibbous	13.48 Days
Neptune	Pisces	7.9	1.5° S, 3:00AM EST, 11/22	Waxing Gibbous	8.94 Days

Night Sky Map



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

1. Face south. Almost overhead lies the "Great Square" with four stars about the same brightness as those of the Big Dipper. Extend a line southward following the Square's two westernmost stars. The line strikes Fomalhaut, the brightest star in the south. A line extending southward from the two easternmost stars, passes Deneb Kaitos, the second brighest star in the south.
2. Draw a line westward following the southern edge of the Square until it strikes Altair, part of the "Summer Triangle."
3. Locate Vega and Deneb, the other two stars of the Summer Triangle. Vega is its brightest member, while Deneb sits in the middle of the Milky Way.
4. Jump along the Milky Way from Deneb to Cepheus, which resembles the outline of a house. Continue jumping to the "W" of Cassiopeia, then to Perseus, and finally to Auriga with its bright star Capella.

Binocular Highlights

A and B: Examine the stars of the Pleiades and Hyades, two naked eye star clusters. **C:** The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval. **D:** Sweep along the Milky Way from Altair, past Deneb, through Cepheus, Cassiopeia and Perseus, then to Auriga for many intriguing star clusters and nebulous areas. **E.** The Double Cluster.

Click on image for larger PDF

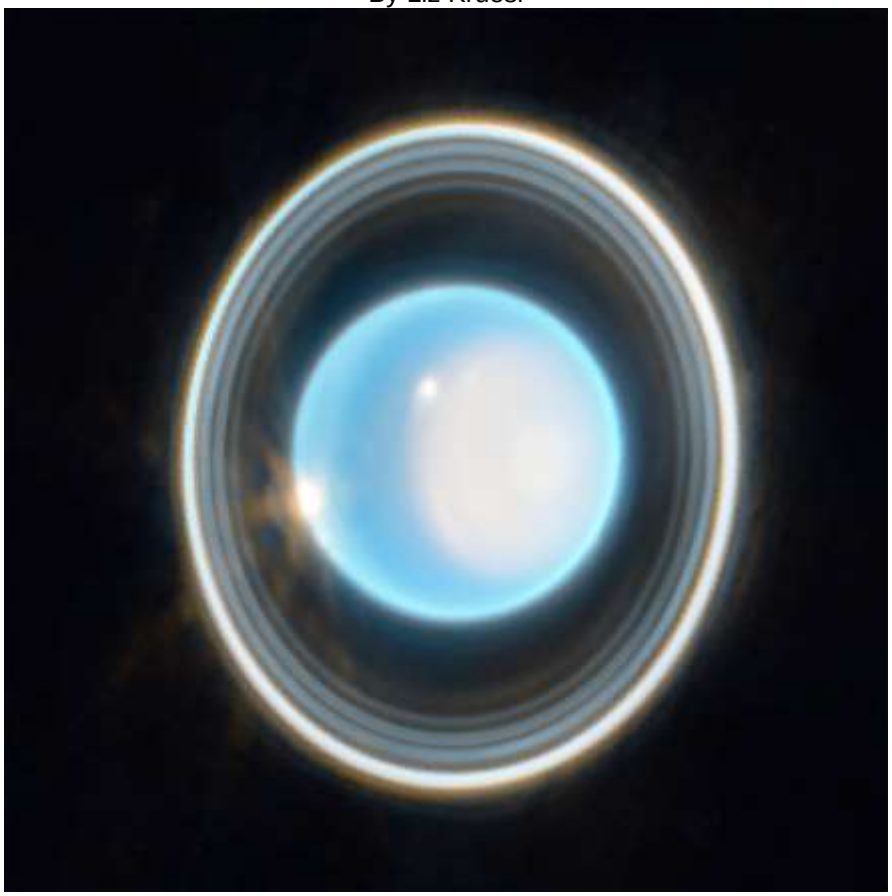
NASA Night Sky Notes

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!

Spy the Seventh Planet, Uranus

By Liz Kruesi



You might be familiar with Saturn as the solar system's ringed planet, with its enormous amount of dust and ice bits circling the giant planet. But Uranus, the next planet out from the Sun, hosts an impressive ring system as well. The seventh planet was the first discovered telescopically instead of with unaided eyes, and it was astronomer extraordinaire William Herschel who discovered Uranus March 13, 1781. Nearly two centuries passed before an infrared telescope aboard a military cargo aircraft revealed the planet had rings in 1977.[1]

Since that discovery, multiple observatories have revealed more details of Uranus and its ring system. Most recently, the NASA-led JWST space observatory captured the planet and its rings in detail. This recent image combines just 12 minutes of exposure in two filters to reveal 11 of the planet's 13 rings. Even some of the planet's atmospheric features are visible in this image. Even with advanced imaging like that from JWST, much of Uranus remains a mystery, including why it orbits the Sun on its side. This is because only one spacecraft has ever visited this planet: NASA's Voyager 2, which flew by the distant planet in the mid-1980s.[2]

Planetary scientists are hoping to change that soon, though. Scientists recommended in a report released last year from the National Academies of Sciences, Engineering, and Medicine that Uranus be the focus on the next big planetary science spacecraft mission. Such a large-scale mission would gain insight into this icy giant planet and the similar solar system planet, Neptune.

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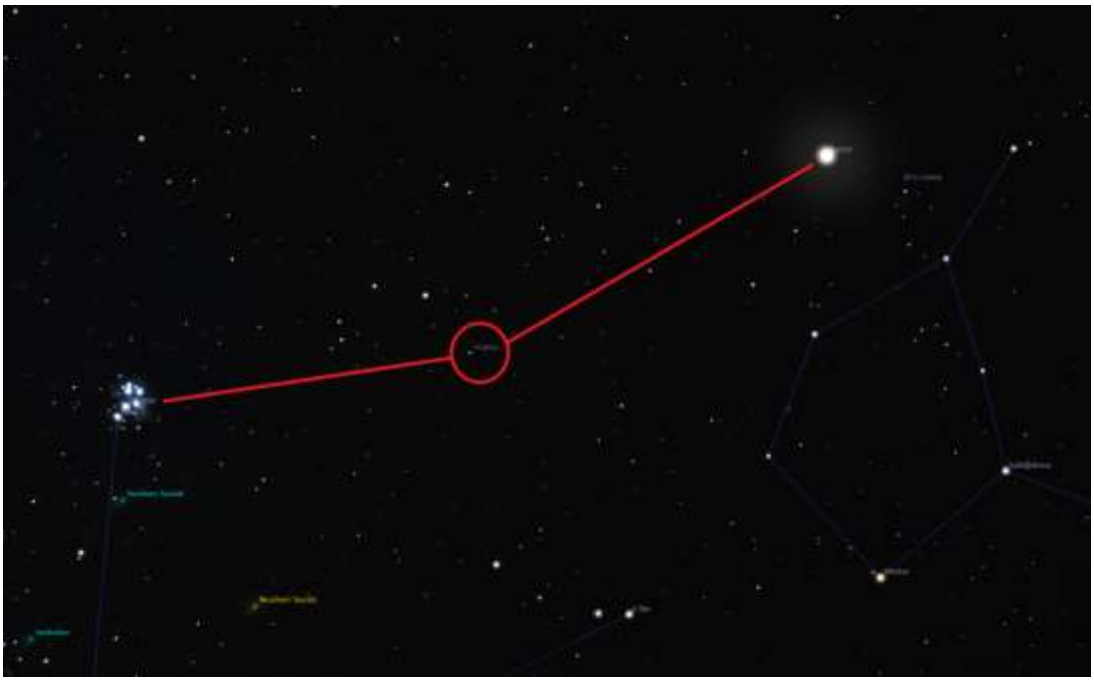
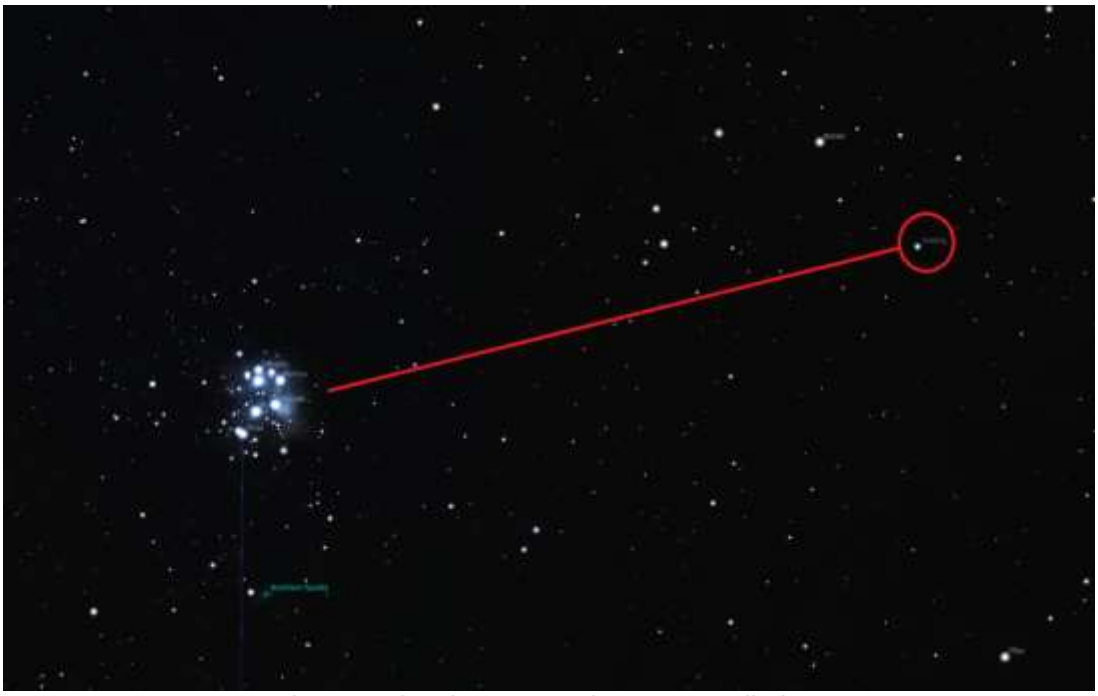
[1] For more about the infrared scope, https://web.archive.org/web/20230429120852/https://www.nasa.gov/vision/universe/watchtheskies/kuiper.html

[2] See more about the flyby at https://www.nasa.gov/history/35-years-ago-voyager-2-explores-uranus/



Sky map picturing M45, Uranus and Jupiter, Stellarium

If you want to catch a view of Uranus with your own eyes, now is prime time to view it. This ice giant planet lies perfectly positioned in mid-November, at so-called “opposition,” when its position in its orbit places it on the other side of the Sun from Earth. That location means our star’s light reflects off Uranus’ icy atmosphere, and the planet appears as its brightest.



Sky map picturing M45 and Uranus, Stellarium

To find it, look overhead just after midnight on November 13. Uranus will lie about halfway between the brilliant planet Jupiter and the diffuse glow of the Pleiades star cluster (M45). While Uranus may look like a bright blinking star in the night sky, its blue-green hue gives aways its identity. Binoculars or a telescope will improve the view.

For more about this oddball planet, visit NASA’s Uranus page.

Image 1: Uranus hosts 13 faint rings, 11 of which are visible in this JWST image. The planet was 19.67 times the Earth-Sun distance from our planet (1.83 billion miles) when JWST captured exposures through two near-Infrared filters on February 6, 2023. The white region in the right side of Uranus is one of the planet’s polar caps. This icy world orbits the Sun differently from the rest of the solar system’s planets – Uranus rolls along on its side. [NASA, ESA, CSA, STScI; Image Processing: Joseph DePasquale (STScI)]

Phil Harrington's Cosmic Challenge

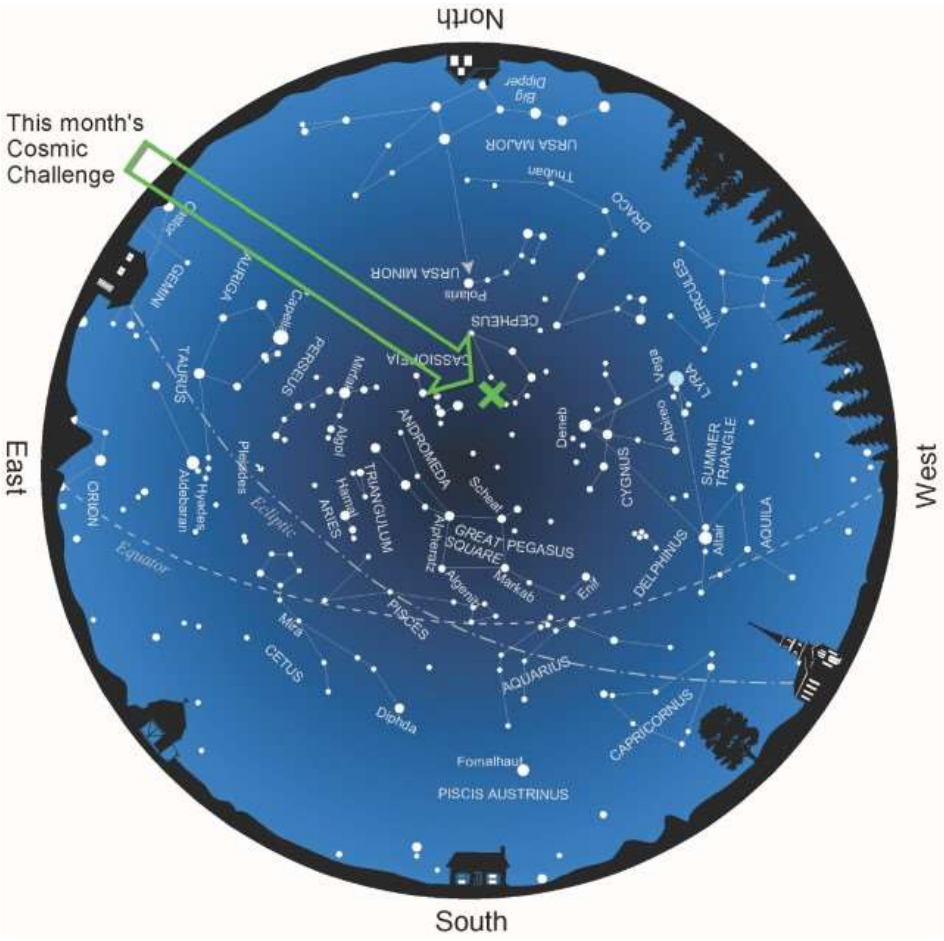
NGC 7354

This month's suggested aperture range: 6 to 9.25 telescopes
Featured Telescope this Month - Meade LS-6

Target	Type	Constellation	RA	Dec	Magnitude	Size
NGC 7354	Planetary nebula	Cepheus	22h 40.3m	+61° 17.1’	10.2	36"

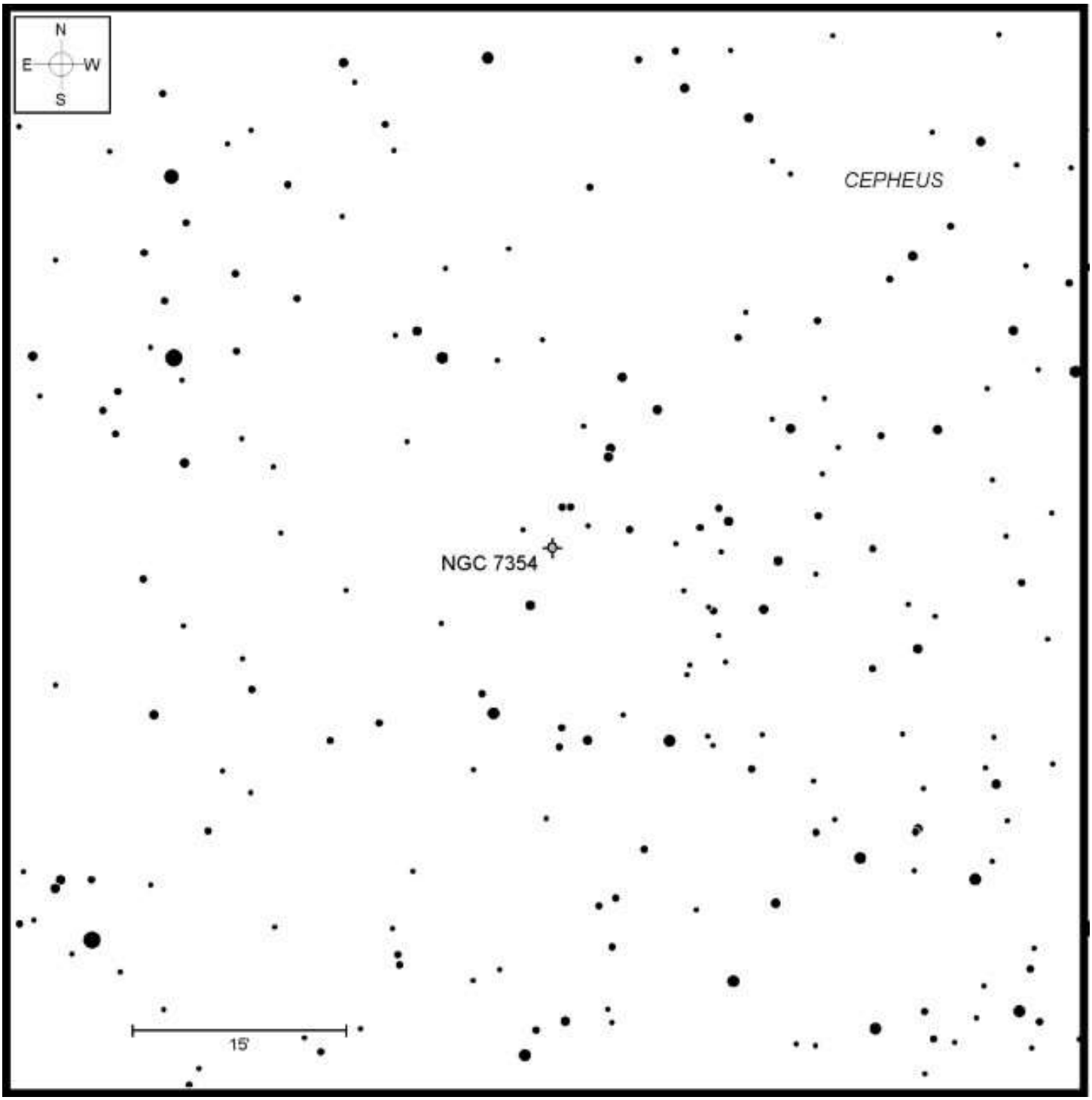
Of the constellations that line the autumn Milky Way, King Cepheus, the king of Aethiopia in Greek mythology, is trod upon by relatively few amateur astronomers. While this is most likely because the constellation's brightest stars are faint compared to his wife, Queen Cassiopeia, the King has many royal deep-sky subjects is his own right that merit a look, including this month's challenge.

Discovered by William Herschel in 1787 and lying some 5,538 light years from the solar system, **NGC 7354** is a splendid little planetary nebula, even if it does not receive much attention. It lies among the faint stars of southeastern Cepheus, not far from the Cassiopeia border.



Above: Evening star map showing the location of this month's Cosmic Challenge.
Credit: *Map adapted from* ***Star Watch*** *by Phil Harrington*

To find it, place the famous variable star, Delta (δ) Cephei near the southern edge of your finder's field. There, a 5th-magnitude star, 30 Cephei, should just pop into view along the field's northern edge. Center your aim about two-thirds of the way from Delta to 30, and then shift about half a degree east. NGC 7354 should be in your telescope's field, nestled between a pair of 11th-magnitude stars to its northwest and a lone 11th-magnitude sun to its southeast.



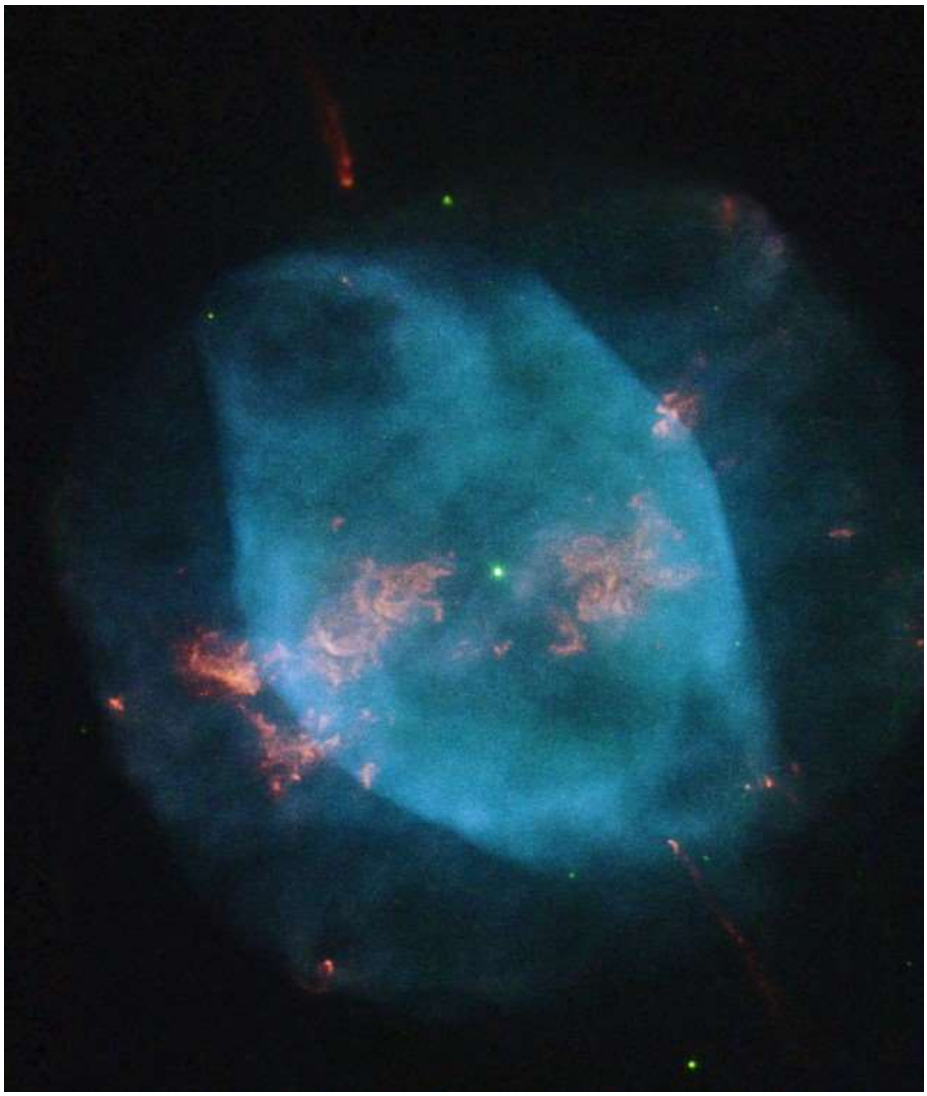
Above: Finder chart for this month's Cosmic Challenge. Credit: Chart adapted from Cosmic Challenge: The Ultimate Observing List for Amateurs by Phil Harrington. Click on the chart to open a printable PDF version.

From my suburban backyard, my filterless 6-inch Schmidt-Cassegrain telescope shows NGC 7354 as a round, grayish disk at 127x. The disk appears perfectly uniform and, with an apparent diameter of half an arcminute, is clearly identifiable as nonstellar. Try the highest magnification that sky conditions and your telescope can bear for the best view. Its central star may only shine at 16th magnitude, but it has a temperature close to 100,000 Kelvin (179,540°F, 99,727°C).

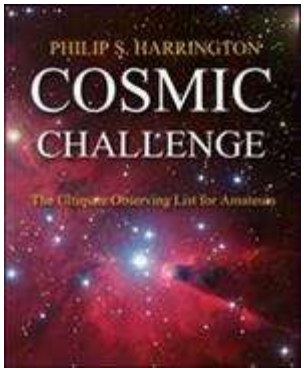
Above: Rendering of NGC 7354 through the author's 6-inch (15.2 cm) f/10 Schmidt-Cassegrain at 127x.

Photographs of NGC 7354 reveal a complex multi-shell structure, with a brighter, ellipsoidal inner shell encircled by a spheroidal, fainter outer shell. Flame-like FLIERs are also evident in some images. FLIERs, an acronym for "Fast, Low Ionization Emission Regions," are red in color and appear to shoot outward from planetary nebulae. Their exact cause and creation remain a mystery, but some suggest that FLIERs result from subsequent bursts of matter flung outward from the central star after the planetary itself formed. Given their high rates of speed, it seems certain that whatever their cause, FLIERs are created independently from, and are formed after, the more slowly expanding planetary nebula. Research suggests that these features could also be due to a companion central star. The presence of a second star in NGC 7354, however, is yet to be confirmed.

Below: NGC 7354 captured by the Hubble Space Telescope. Credit: Judy Schmidt via Wikimedia Commons



Good luck with this month's challenge! Be sure to post your results in this column's discussion forum. And remember that half of the fun is the thrill of the chase. Game on!



About the Author:

Phil Harrington writes the monthly *Binocular Universe* column in Astronomy magazine and is the author of 9 books on astronomy, including Cosmic Challenge: The Ultimate Observing List for Amateurs. Visit www.philharrington.net to learn more.

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