Snake River Skies

The Monthly Newsletter of the Magic Valley Astronomical Society. August 2024

Membership Meeting
August 10th 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

Message from the Club Vice President

Hi everyone: Hope some of you were able to enjoy our annual Castle Rocks star party. As August is now upon us, we have several nighttime events upcoming we can all enjoy. The Perseids Meteor shower runs from July 11-August 13th, with the peak on August 12th. Unfortunately, a full Moon dims the party on the 12th, but a few days prior to maximum should help. The major planets return for an all-night show. Saturn is up by 9pm local time with Jupiter, Mars and Uranus around Midnight. Our August meeting on the 10th will feature a presentation by Jerry Brink on - The Search for Parallax. The second presentation will be by Ryan Showers on - Astronomy for All Ages. That's 7pm at the Herrett Center Library. See you there!

Vice President Jay Hartwell

MVAS

This month is all about spectacular planet sightings, so be sure to turn your eyes to the sky!

- On August 1, between 4:00 and 5:00 A.M., look for a lovely triangle. Made up of Jupiter to the lower left; the orange Taurus star, Aldebaran, to the lower right; and Mars to the upper apex - all to the right of a stunning crescent Moon.
- From August 1 to 13, Mars and Jupiter will continue to come closer together in the predawn sky.
- Then, on August 13 through the 16th, Mars and Jupiter form a beautiful conjunction. You won't want to miss this beautiful sight!
- On August 27, the crescent Moon meets up again with dazzling Jupiter in the east sky.
- August 11/12/13: The great Perseid Meteor Shower will have excellent dark sky viewing conditions, since the Moon will set before midnight. The Perseids deliver a meteor a minute in dark, cloudless skies. These shooting stars are best seen after midnight.

Visit our Website
www.mvastro.org

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Moon Phases for August 2024

Twin Falls, Idaho, United States

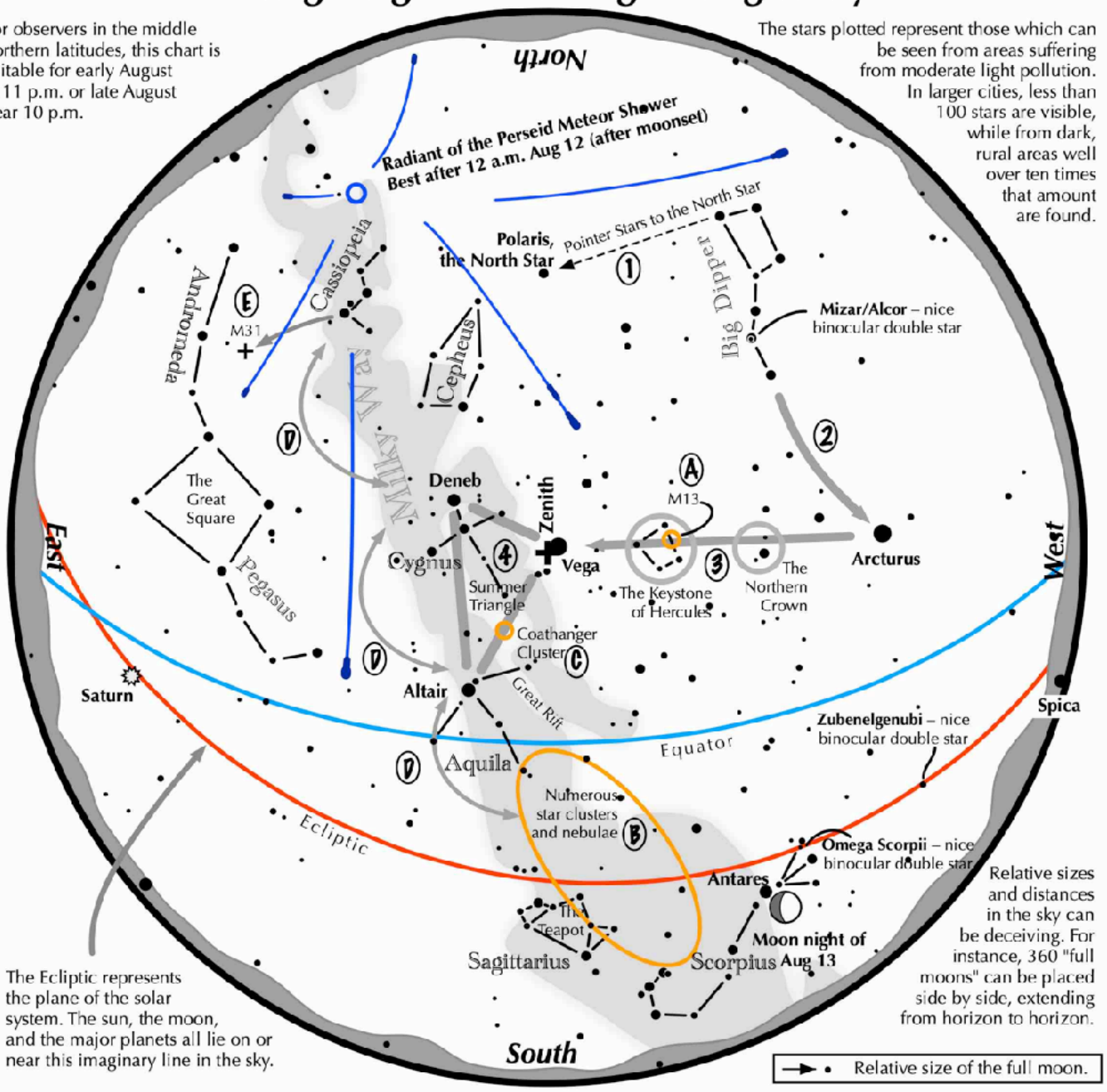
August 2024

No.	Su	Mo	Tu	We	Th	Fr	Sa
31					1  6% Waning Crescent	2  2% Waning Crescent	3  1% Waning Crescent
32	4  New Moon 05:14 am	5  2% Waxing Crescent	6  6% Waxing Crescent	7  11% Waxing Crescent	8  18% Waxing Crescent	9  26% Waxing Crescent	10  35% Waxing Crescent
33	11  44% Waxing Crescent	12  First Quarter 09:19 am	13  63% Waxing Gibbous	14  73% Waxing Gibbous	15  82% Waxing Gibbous	16  89% Waxing Gibbous	17  95% Waxing Gibbous
34	18  99% Waxing Gibbous	19  Full Moon 12:28 pm	20  97% Waning Gibbous	21  92% Waning Gibbous	22  84% Waning Gibbous	23  75% Waning Gibbous	24  64% Waning Gibbous
35	25  53% Waning Gibbous	26  Last Quarter 03:28 am	27  32% Waning Crescent	28  23% Waning Crescent	29  15% Waning Crescent	30  8% Waning Crescent	31  3% Waning Crescent

https://www.mooninfo.org/moon-calendar/august-2024.html | Moon Names: The Old Farmer's Almanac, August 2024

The Tlingit people of the Pacific Northwest traditionally called this time of the season the Mountain Shadows Moon.

Navigating the mid August Night Sky



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

1. Extend a line north from the two stars at the tip of the Big Dipper's bowl. It passes by Polaris, the North Star.
2. Follow the arc of the Dipper's handle. It intersects Arcturus, the brightest star in the June evening sky.
3. To the northeast of Arcturus shines another star of the same brightness, Vega. Draw a line from Arcturus to Vega. It first meets "The Northern Crown," then the "Keystone of Hercules." A dark sky is needed to see these two dim stellar configurations.
4. High in the East lies the summer triangle stars of Vega, Altair, and Deneb.

Binocular Highlights

A: On the western side of the Keystone glows the Great Hercules Cluster.
B: Between the bright stars Antares and Altair, hides an area containing many star clusters and nebulae.
C: 40% of the way between Altair and Vega, twinkles the "Coathanger," a group of stars outlining a coathanger.
D: Sweep along the Milky Way for an astounding number of faint glows and dark bays, including the Great Rift.
E: The three westernmost stars of Cassiopeia's "W" point south to M31, the Andromeda Galaxy, a "fuzzy" oval.

Astronomical League *www.astroleague.org/outreach; duplication is allowed and encouraged for all free distribution.*

The Sky This Month – August 2024

The northern summer Milky Way in the southwestern sky as seen from southern Alberta, Canada.

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

Jupiter and Mars, both tangled in the horns of Taurus, play cat and mouse in the morning sky before dawn. The Perseids meteor shower is underway as August begins and peaks on August 11-12 with the Moon mostly out of the way. Venus hangs low and bright over the northwestern horizon after sunset. Later in the month, the Moon passes near (and in front of) brightening Saturn and faint Neptune. And the thickest part of the Milky Way shines overhead and arcs down to the south. Here's what to see in the night sky this month.

The Moon makes an isosceles triangle with the bright stars Castor and Pollux rising in the early-morning northeastern sky on August 2, 2024.

2 August 2024. As dawn arrives, look east to see a sliver of Moon near the bright stars Castor and Pollux in the northeast, about 6° from the each of these two bright stars in Gemini. Further west and south you see the bright stars of Taurus, Auriga, and Orion emerging above the horizon as the sky brightens.

3 Aug. The Moon is now lost in the morning twilight, but look higher in the east to see brilliant Jupiter and brightening Mars among the stars of Taurus. Jupiter shines at magnitude -2.1 and spans nearly 36”, big enough to reveal detail in a telescope. Mars shines at magnitude +0.9 and has grown to a (still small) size of almost 6”. The planet appears nearly the same color and brightness as the star Aldebaran which lies 5° to its southeast.

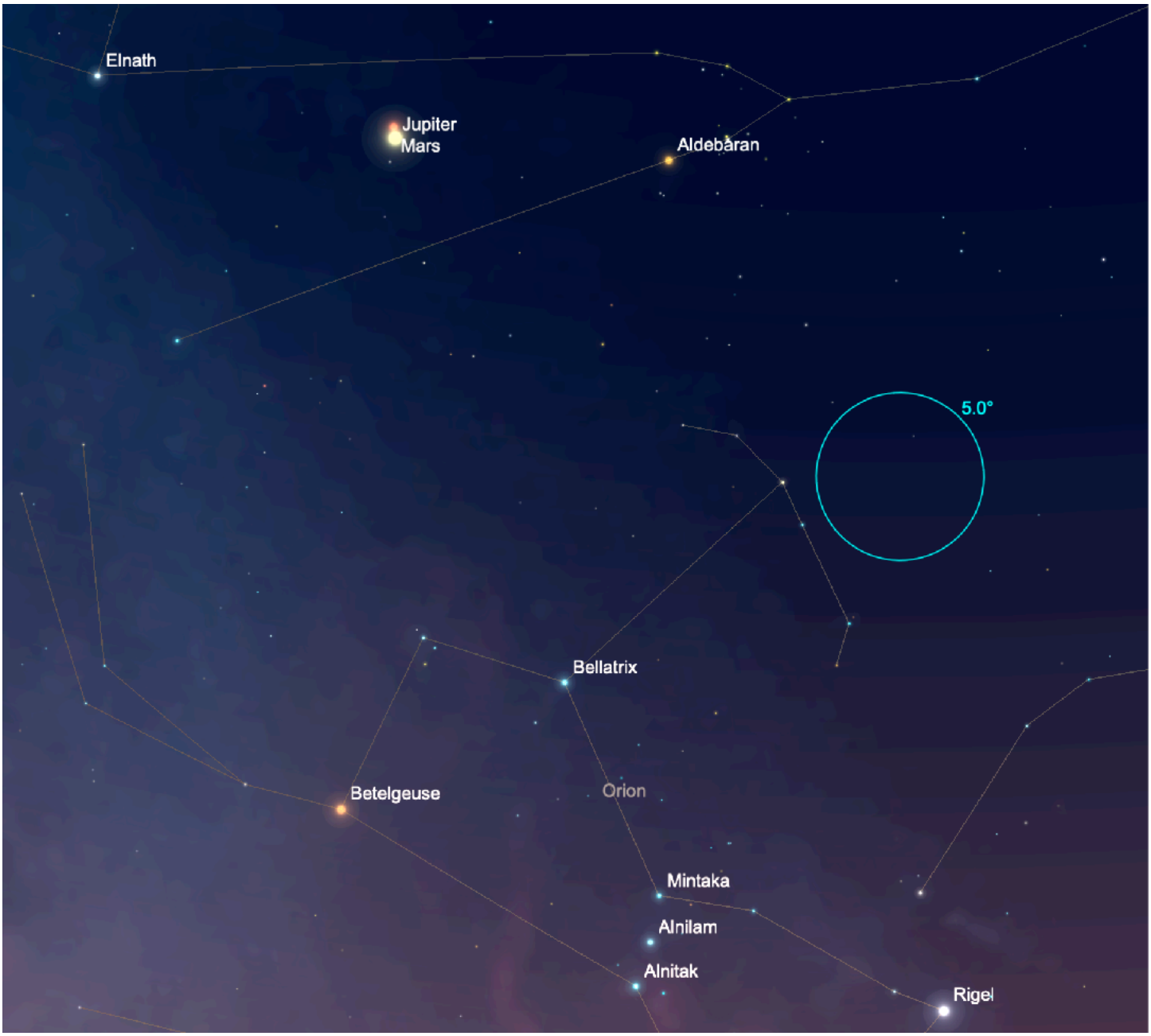
4 Aug. New Moon, 11:13 UT

5 Aug. The Moon returns to the evening sky as a wisp of a crescent that sits just half a degree from Venus very low in the west-northwest. Both lie in the constellation Leo. To see this dazzling view, you need a clear view of the horizon. A pair of binoculars will help pull this fleeting vista from the evening twilight.

11-12 Aug. The Perseid meteor shower peaks. This is the finest meteor shower of the year for northern stargazers, with 40-60 meteors per hour visible at the peak in the hours before dawn on August 13. Once called the Tears of St. Lawrence, this meteor shower occurs as the Earth moves through a stream of debris left by Comet Swift-Tuttle. This year the Moon is at first quarter and gets out of the way after midnight for the best part of the show. Stay away from city lights, if you can, and you will be rewarded with a bright meteor every minute or two.

12 Aug. First Quarter Moon, 15:19 UT

13 Aug. The fattening gibbous Moon lies about 1.5° from Antares in the southwestern sky.

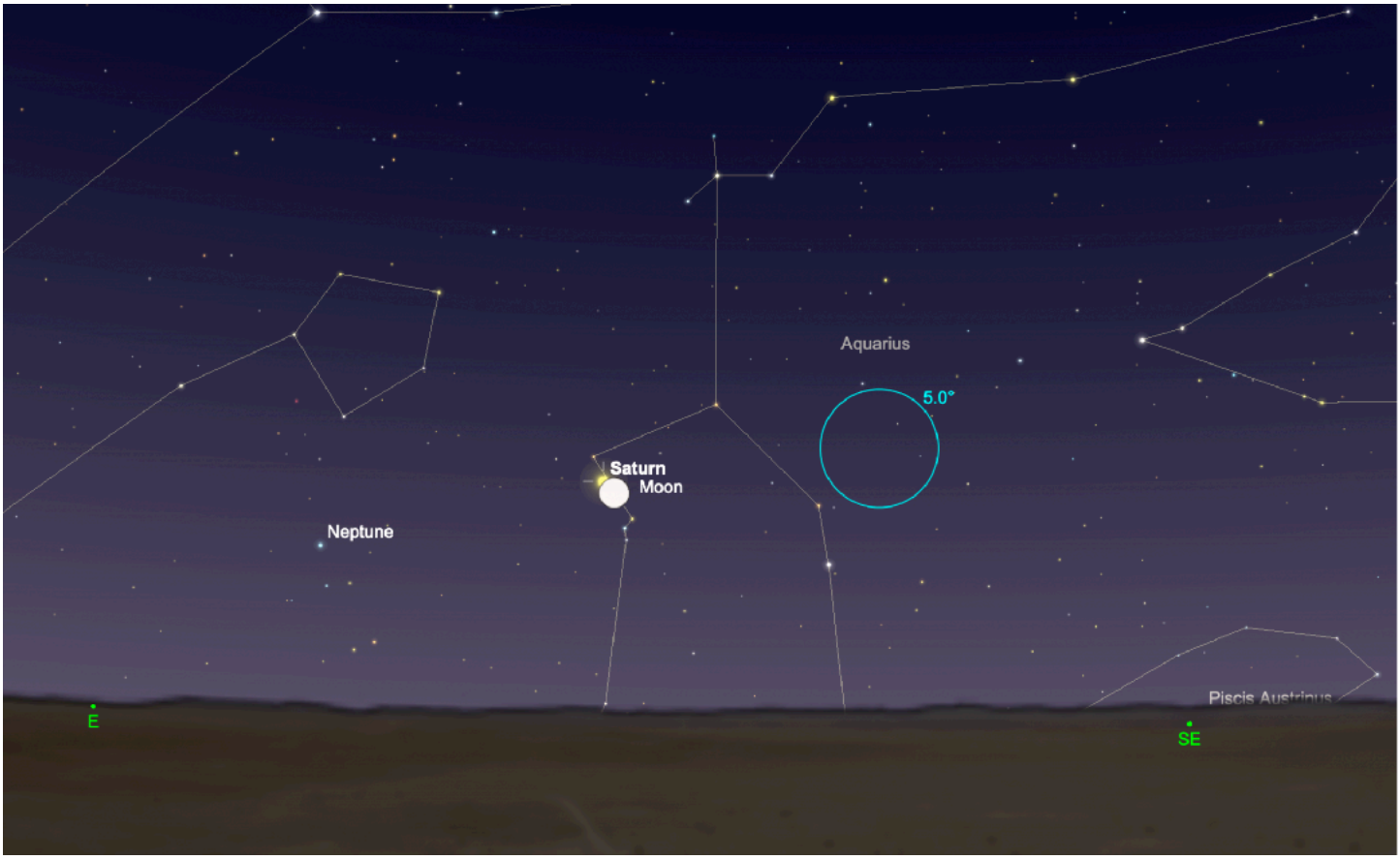


Mars and Jupiter lies within half a degree of each other in Taurus on August 14, 2024.

14 Aug. Mars has been on the move since the beginning of the month and now finds itself just half a degree from Jupiter in the early-morning sky. Both planets lie among the stars of the horns of Taurus.

19 Aug. Full Moon, 18:26 UT (the ‘Sturgeon Moon’)

20-21 Aug. The brilliant Moon, just a day past full, rises together with Saturn in the southeastern sky in Aquarius. At magnitude +0.7, Saturn is brighter than any star in this part of the sky. The planet spans about 19” and its rings are tilted nearly to our line of sight, but they’re still visible in a telescope. The planet continues to grow and brighten on its way to opposition next month. NOTE: Observers in most of Europe and northern South America will see Saturn occulted by the Moon on the night and early morning of Aug. 20-21. See timing for the occultation for many locations at this link.



Saturn, the Moon, and Neptune rising near midnight on August 20, 2024.

21 Aug. After occulting Saturn less than a day ago, the Moon passes in front of Neptune during the evening of Aug. 21 for observers in north Africa and parts of Europe. Timing and visibility here.

26 Aug. Last Quarter Moon, 09:26 UT

27 Aug. Look in the eastern morning sky to see Jupiter, Mars, and the waning crescent Moon gathered in Taurus along with the bright stars of Auriga and Orion. It's a beautiful sight – no optics required.

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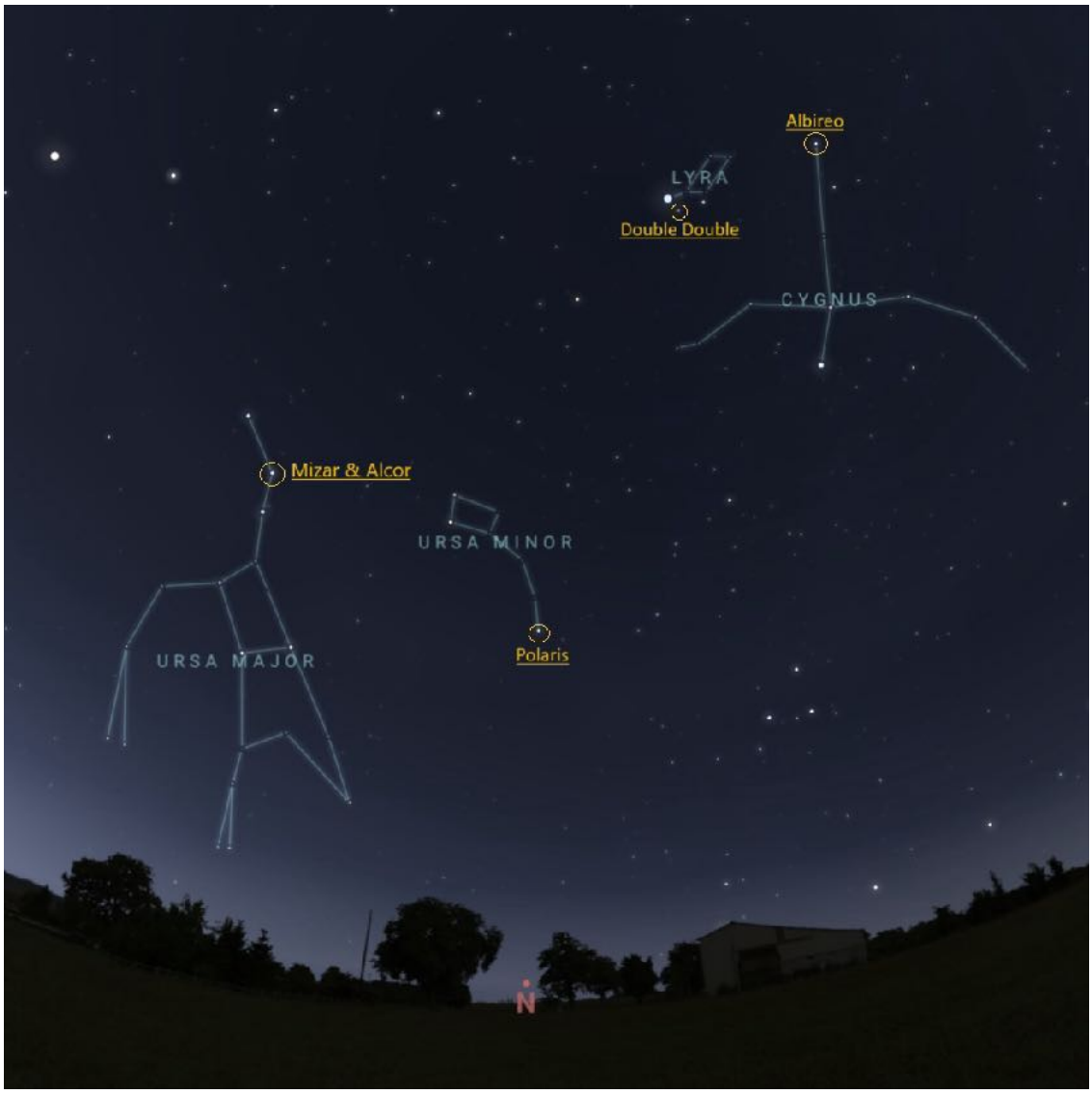
This article is distributed by the NASA Night Sky Network, a coalition of hundreds of astronomy clubs across the US dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, stargazing info and more.

August Night Sky Notes: Seeing Double

By Kat Troche

During the summer months, we tend to miss the views of Saturn, Jupiter and other heavenly bodies. But it can be a great time to look for other items, like globular star clusters such as Messier 13, open star clusters such as the Coma Star Cluster (Melotte 111), but also double stars!



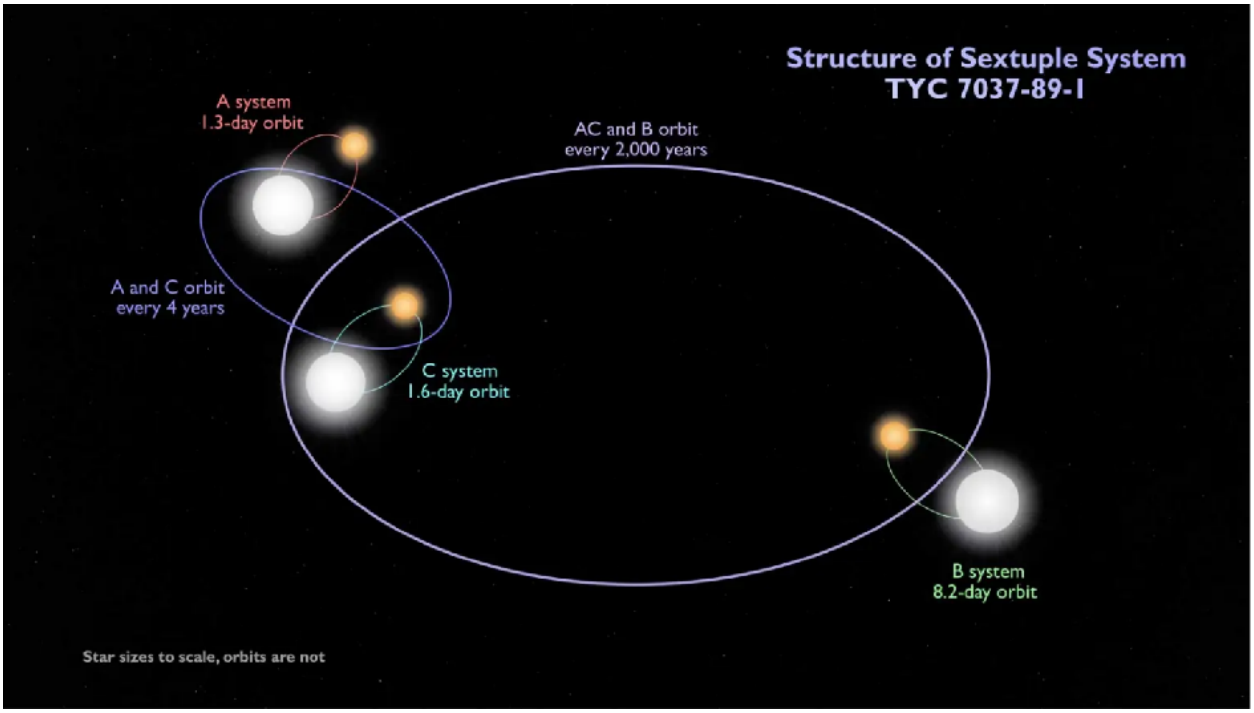
Mid-August night sky constellations with the following multiple star systems highlighted: the Double Double in Lyra, Albireo in Cygnus, Polaris in Ursa Minor, Mizar and Alcor in Ursa Major. Credit: Stellarium Web

What Are Double Stars?

If you have seen any movies or read any books that refer to having two suns in the sky, that would be a double star system. These star systems typically come in two types – binary and optical doubles. Binary stars are two stars that are gravitationally bound and orbit each other, and optical double stars only appear to be close together when viewed from Earth, but in reality, are extremely far apart from another, and are not affected by each other's gravity. With a small telescope, in moderately light polluted skies, summer offers great views of these stellar groupings from the Northern Hemisphere:

- Double Double: also known by its technical name, Epsilon Lyrae, this multiple star system appears as one star with naked eye observing. But with a small telescope, it can be split into 'two' stars. A large telescope reveals Epsilon Lyrae's secret – what looks like a single star is actually a quadruple star system!
- Albireo: a gorgeous double star set – one blue, one yellow – in the constellation Cygnus.

- Polaris: while technically a multiple star system, our North Star can easily be separated from one star to two with a modest telescope.
- Mizar and Alcor: located in the handle of the Big Dipper, this pair can be seen with the naked eye.



This schematic shows the configuration of the sextuple star system TYC 7037-89-1. The inner quadruple is composed of two binaries, A and C, which orbit each other every four years or so. An outer binary, B, orbits the quadruple roughly every 2,000 years. All three pairs are eclipsing binaries. The orbits shown are not to scale. Credit: NASA's Goddard Space Flight Center

Aside from looking incredible in a telescope or binoculars, double stars help astronomers learn about measuring the mass of stars, and about stellar evolution. Some stars orbit each other a little too closely, and things can become disastrous, but overall, these celestial bodies make for excellent targets and are simple crowd pleasers.

Up next, learn about the Summer Triangle's hidden treasures on our mid-month article on the Night Sky Network page.

Phil Harrington's Cosmic Challenge

Draconian Doubles

This month's suggested aperture range:
Binoculars
Featured Binoculars: Celestron SkyMaster 25x100mm Porro Binoculars
Probably overkill here

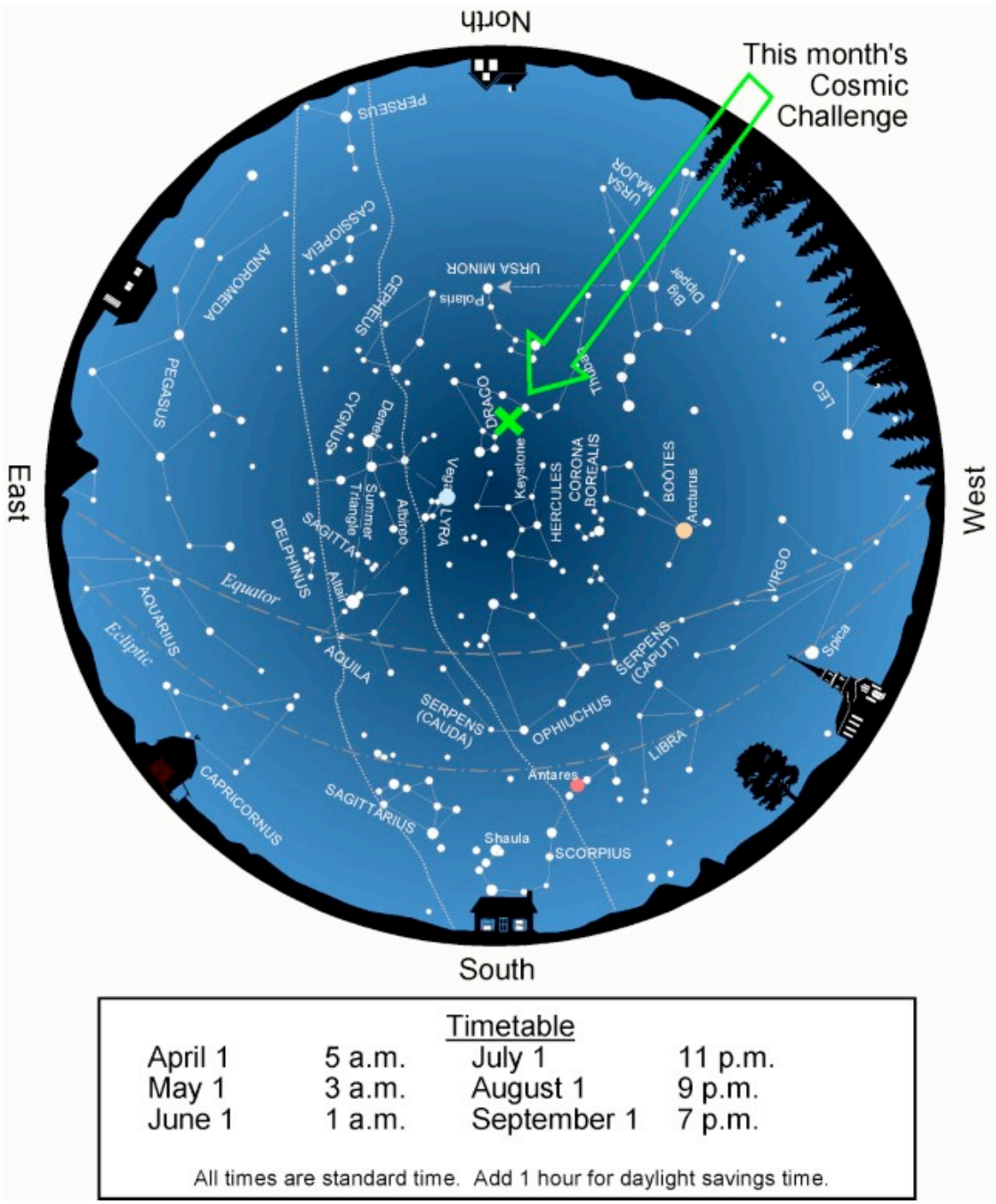
The ability of a telescope to resolve closely spaced objects is referred to as the instrument's resolving power, and is especially important when viewing tight binary stars. How close can two stars appear and still be resolvable as two? The single most important factor that influences the result is a telescope's aperture. In general, the larger the aperture, the finer the level of detail resolved. Of the many observational experiments that have been conducted to determine the resolution limits for telescopes, the two most often cited are the Rayleigh Criterion and the Dawes Limit.

Some amateurs can readily exceed these predictions, while others will never reach it. That's because a telescope's actual performance can be adversely affected by many factors, including turbulence in our atmosphere, a great disparity in the test stars's colors and/or magnitudes, misaligned or poor-quality optics, and the observer's visual acuity.

Dawes Limit calculates that 10x50 binoculars should be able to resolve binary stars separated by 2.3". Binoculars don't even come close. That's because binocular resolution depends more on magnification than aperture. Assuming 20/20 vision, the human eye can resolve stars 4 arc-minutes (240 arc-seconds) apart. To estimate the resolving power of binoculars, divide 240 by the binocular's magnification. For example, with 10x binoculars, stars need to be 24 arc-seconds apart to be resolved.

The list below from my book Cosmic Challenge shows the expected resolving ability for many different magnification values. Of course, your results may vary. But let's put a few of these to the test.

Binocular magnification	Resolution threshold (arcseconds)
6	40
7	34
8	30
9	27
10	24
11	22
12	20
14	17
15	16
16	15
18	13
20	12
25	10
30	8

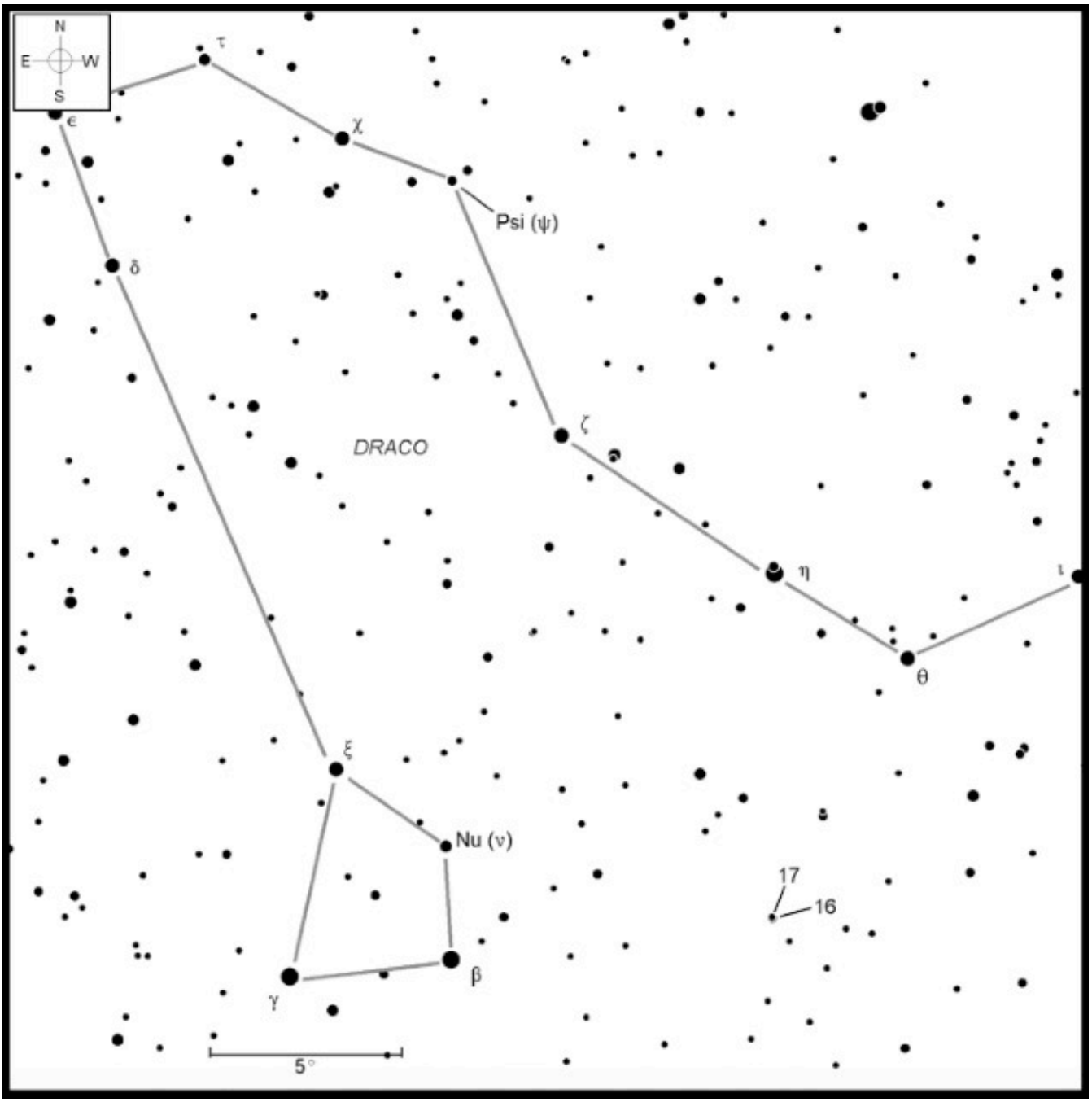


Timetable

April 1	5 a.m.	July 1	11 p.m.
May 1	3 a.m.	August 1	9 p.m.
June 1	1 a.m.	September 1	7 p.m.

All times are standard time. Add 1 hour for daylight savings time.

Above: Summer 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.

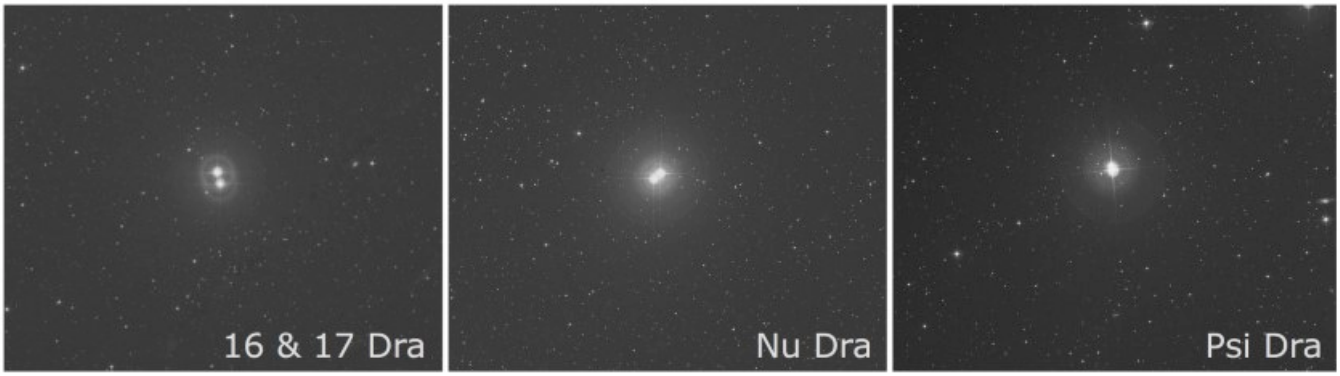
The constellation of Draco the Dragon winds its way through our northern August sky, and while most of its stars are fainter than 3rd magnitude, it holds some fun resolution challenges for binoculars. Here are three of my favorites.

16 and 17 Draconis form a wide, easily resolved pair of stars in south-central Draco. 17 is the northernmost and slightly brighter of the two. 16 Dra, with a spectral class of F8V, has an apparent magnitude of 5.4, while 17 Draconis, a G0V star, has an apparent magnitude of 5.0. The two stars are separated by about 84 arcseconds. Despite their proximity in the sky, they are not a gravitationally bound pair, so they do not orbit each other. 16 Draconis is situated approximately 11.6 light-years away. Its companion, 17 Draconis, is located about 400 light-years from Earth.

Nu (n) Draconis is another wide double star that can be split through all binoculars. Nu is the faintest of the four stars in the Dragon's "head." This location led to its nickname, the Eyes of the Dragon. Nu is composed of two nearly identical 5th magnitude type-A white stellar jewels. In his classic book Celestial Objects for Common Telescopes, the renowned 19th-century deep-sky observer Reverend T.W. Webb called these stars "grand", an accurate portrait through modern binoculars as well. Studies indicate Nu is a true binary system, with both stars located about 100 light years away. At this

distance, the stars' apparent separation of 62 arcseconds indicates a real separation of about 1,500 Astronomical Units. They have an orbital period of roughly 44,000 years. They lie about 99 light years from Earth.

How about a tougher test? Try your luck with Psi (ψ) Draconis, lying partway along the dragon's sinuous body. What looks like a single 4th-magnitude point to the eye is actually a pair of 5th- and 6th-magnitude stars separated by 30 arcseconds. That's right at the estimated limit for 8x binoculars, but again, they will need to be steadily supported for any hope of resolving this pair. Higher-power binoculars may reveal the pair's color contrast. The system consists of a yellow-white main-sequence primary and an orange subgiant companion. Also known as 32 Draconis, Psi lies about 75 light years away.

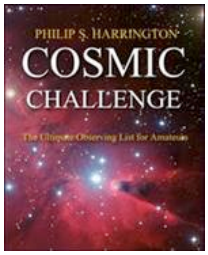


Above: Images of this month's Cosmic Challenges. Credit: DSS2.

For more binocular binary challenges, be sure to visit the Cloudy Nights topic Adventures with Binocular Double Stars. Since CN'er Fiske started the topic in October 2021, there have been over 580 replies to the topic.

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 test. Contact me through my website or post to this month's discussion forum.

Until next month, remember that half of the fun is the thrill of the chase. Game on!



About the Author:

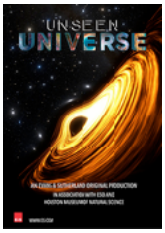
Phil Harrington is a contributing editor to Astronomy magazine and is the author of 9 books on astronomy. Visit www.philharrington.net to learn more. Phil Harrington's Cosmic Challenge is copyright 2024 by Philip S. Harrington. All rights reserved. No reproduction, in whole or in part, beyond single copies for use by an individual, is permitted without written permission of the copyright holder. This newsletter editor has received the authors permission to use this article.

Centennial Observatory Upcoming Events
All events are weather permitting.

Event	Place	Date	Time	Admission
Summer Solar Session #11	Centennial Observatory	Wednesday, August 7th, 2024	1:30 to 3:30 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, August 10th, 2024	9:15 to 11:15 PM	FREE
Close Conjunction of Jupiter and Mars	Centennial Observatory	Wednesday, August 14th, 2024	4:30 to 5:30 AM	FREE
Summer Solar Session #12	Centennial Observatory	Wednesday, August 14th, 2024	1:30 to 3:30 PM	FREE
Summer Solar Session #13	Centennial Observatory	Wednesday, August 21st, 2024	1:30 to 3:30 PM	FREE
Summer Solar Session #14	Centennial Observatory	Wednesday, August 28th, 2024	1:30 to 3:30 PM	FREE

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

Now Showing!



You may also visit the Herrett Center Video Vault

Websites and Other Helpful Astronomy Links.

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

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/4955 a lunar phase and libration calculator and https://svs.gsfc.nasa.gov/5187/

The Lunar Reconnaissance Orbiter Camera (LROC) quick map. https://www.universa...ise-and-sunset/

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

Summaries on the planets for each month can be found at https://earthsky.org/astronomy-essentials/

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 by clicking on https://www.timeandd...stronomy/night/

Click on https://www.curtrenz.../asteroids.html for information on asteroid occultations taking place this month.

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

For current sky charts visit the NASA Night Sky Network https://nightsky.jpl.nasa.gov/download-view.cfm?Doc_ID=699

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.