NIGHTFALL

A PUBLICATION OF THE HUACHUCA ASTRONOMY CLUB

AUGUST 2024

HAC Meeting Speaker

Kevin Scott Schindler of Lowell Observatory will speak at the August monthly club meeting on August 16th. The topic has not yet been provided. Dinner will be at Native Grill and Wings in Sierra Vista at 5pm. RSVP to Jim Reese via the HACAstro forum.

New Members

Del Gordon of Sierra Vista re-joined the club this month. Welcome Del, we are glad you joined.

Patterson Observatory - 20th Anniversary Celebration

The Patterson Observatory 20th Anniversary Celebration will be held on September 5th at 5 p.m. in the Judy A. Gignac Education Center. (Patterson's ribbon cutting was September 11, 2004). David Levy, who was the keynote speaker at Patterson's dedication will once again be the speaker at this event. There will be light refreshments served. Admission is free and the event will be open to the public. We hope to include some local dignitaries. HAC members and foundation board members are encouraged to attend. September 5th is the regularly scheduled public night date, so we will adjourn to the observatory immediately following the reception.

Construction began on the Patterson Observatory in the fall of 2003 with funding provided by our community's donations to the University South Foundation. David Patterson was the major donor and HAC member Dave Healy was mostly responsible for the acquisition of the 20-inch RC telescope. The telescope previously resided in Healy's Junk Bond Observatory from 2000 to 2004 and local lore has it that the telescope came to the Patterson Observatory through his generosity alone.

Several HAC members lobbied and worked to make the observatory a reality and HAC continues to operate and support the observatory today. Well more than a hundred HAC members have donated their time and efforts to the observatory over the last two decades. The Patterson Observatory is the focal point for astronomy outreach in Cochise County and has served our community well!

Dine Under the Stars Scholarship Fundraiser

Dine Under the Stars on Saturday September 28th will feature live music by Desert Fever and dinner service by Pizzeria Mimosa. This year's event will be held under a larger tent and dinner will be plated and served (not a buffet line). Splash of Spirts will provide the dinner service. Adults are entitled to two drinks, wine or beer. Sheriff Mark Dannels and local radio personality Jeff Davenport will emcee the event. There will be a silent auction, a live auction, and a 50-50 raffle.

The Patterson Observatory will be open throughout the event for stargazing. Doors open at 5 p.m. Adult tickets are $80 per person. Dine Under the Stars is the University South Foundation's major annual fundraiser. All proceeds from Dine Under the Stars go toward providing scholarships to students residing in Cochise County.

The foundation is the owner of the Patterson Observatory. In fact, the first Dine Under the Stars was held to raise funds for and promote the observatory. HAC has a long association with the foundation and is a major donor to the event. We encourage all HAC members to participate, either by purchasing a ticket and attending the event or by volunteering at the observatory. Purchase tickets here.

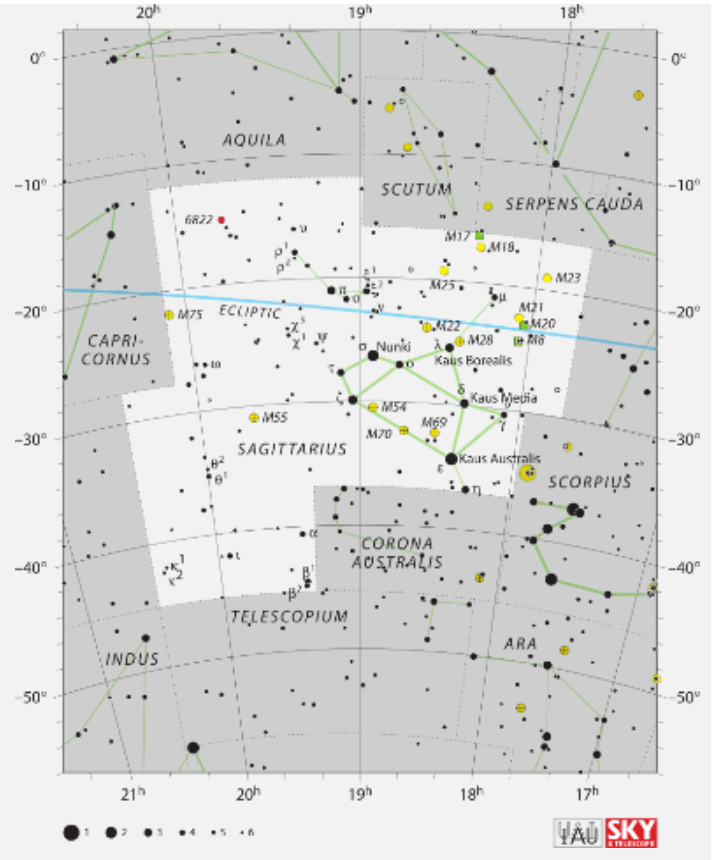
Monsoon Stand-down

The club does not generally schedule outreach or observing events during the monsoon months of July and August. This includes solar Saturdays at the library and the Public Night at Patterson. We'll be back with a full schedule in September.

President's Constellation Exploration

by Penny Brondum

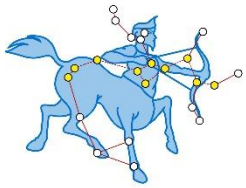
Sagittarius is one of the constellations of the zodiac and is located in the Southern celestial hemisphere.



Credit Sagittarius constellation map by IAU and Sky&Telescope magazine

It is one of the 48 constellations listed by the 2nd-century astronomer Ptolemy and remains one of the 88 modern constellations. Its name is Latin for "archer". Sagittarius is commonly represented as a centaur drawing a bow. It lies between Scorpius and Ophiuchus to the west and Capricornus and Microscopium to the east. The center of the Milky Way lies in the westernmost part of Sagittarius.

The constellation is often depicted as having the rough appearance of a stick-figure archer drawing its bow, with the fainter stars providing the outline of the horse's body. Sagittarius famously points its arrow at the heart of Scorpius, represented by the reddish star Antares, as the two constellations race around the sky.



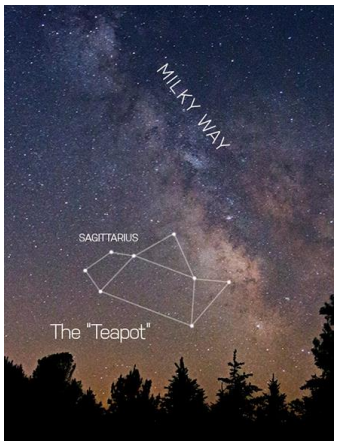
The Babylonians identified Sagittarius as the god Nergal, a centaur-like creature firing an arrow from a bow. It is generally depicted with wings, with two heads, one panther head and one human head, as well as a scorpion's stinger raised above its more conventional horse's tail. The Sumerian name Pabilsag is composed of two elements – Pabil, meaning 'elder paternal kinsman' and Sag, meaning 'chief, head'. The name may thus be translated as the 'Forefather' or 'Chief Ancestor'. The figure is reminiscent of modern depictions of Sagittarius.

In Greek mythology, Sagittarius is usually identified as a centaur: half human, half horse. However, perhaps due to the Greeks' adoption of the Sumerian constellation, some confusion surrounds the identity of the archer. Some identify Sagittarius as the centaur Chiron, the son of Philyra and Cronus, who was said to have changed himself into a horse to escape his jealous wife, Rhea, and tutor to Jason. As there are two centaurs in the sky, some identify Chiron with the other constellation, known as Centaurus. Or, as an alternative tradition holds, that Chiron devised the constellations Sagittarius and Centaurus to help guide the Argonauts in their quest for the Golden Fleece.

A competing mythological tradition, as espoused by Eratosthenes, identified the Archer not as a centaur but as the satyr Crotus, son of Pan, who Greeks credited with the invention of archery. According to myth, Crotus often went hunting on horseback and lived among the Muses, who requested that Zeus place him in the sky, where he is seen demonstrating archery.

The arrow of this constellation points towards the star Antares, the "heart of the scorpion", and Sagittarius stands poised to attack should Scorpius ever attack the nearby Hercules, or to avenge Scorpius's slaying of Orion.

Today's view of Sagittarius is as the "Teapot" asterism. To complete the teapot metaphor, under dark skies a particularly dense area of the Milky Way (the Large Sagittarius Star Cloud) can be seen rising in a north-easterly arc above the spout, like a puff of steam rising from a boiling kettle. The galactic center is located off the top of the spout.



Due to its astronomical interest and its status as a Zodiac constellation, Sagittarius is one of the best-known constellations and is considered a prominent feature of the summer skies in the northern hemisphere. However, at locations north of 43°N the constellation either drags along the southern horizon, or it does not rise at all. By contrast, in most of the southern hemisphere Sagittarius can appear overhead or nearly so. It is hidden behind the Sun's glare from mid-November to mid-January and is the location of the Sun at the December solstice. By March, Sagittarius is rising at

midnight. In June, it achieves opposition and can be seen all night. The June full moon appears in Sagittarius.

In classical antiquity, Capricorn was the location of the Sun at the December solstice, but due to the precession of the equinoxes, this had shifted to Sagittarius by the time of the Roman Empire. By approximately 2700 AD, the Sun will be in Scorpius at the December solstice.


Messier 54
Credit: ESA/Hubble & NASA

The Milky Way is at its densest near Sagittarius, as this is where the Galactic Center lies. As a result, Sagittarius contains many star clusters and nebulae.

Sagittarius contains two well-known star clouds, both considered fine binocular objects. The Large Sagittarius Star Cloud is the brightest visible region of the Milky Way. It is a portion of the central bulge of the galaxy seen around the thick dust of the Great Rift, and is the innermost galactic structure that can be observed in visible wavelengths. It has several embedded clusters and superimposed dark nebulae. The Small Sagittarius Star Cloud, also known as Messier 24, has an apparent magnitude of 2.5. The cloud fills a space of significant volume to a depth of 10,000 to 16,000 light-years. Embedded in M24 is NGC 6603, a small star cluster that is very dense. NGC 6567, a dim planetary nebula, and Barnard 92, a Bok globule, are also nearby.

Sagittarius contains several well-known nebulae, including the Lagoon Nebula (Messier 8), the Omega Nebula (Messier 17),the Trifid Nebula (Messier 20), a large nebula containing some very young, hot stars.

The Lagoon Nebula (M8) is an emission nebula that is located 5,000 light-years from Earth and measures 140 light-years by 60 light-years. Though it appears grey in telescopes to the unaided eye, long-exposure photographs reveal its pink hue, common to emission nebulae. The Lagoon Nebula was discovered independently by John Flamsteed in 1680, Guillaume Le Gentil in 1747, and Charles Messier in 1764. The central area of the Lagoon Nebula is also known as the Hourglass Nebula, so named for its distinctive shape. The Hourglass Nebula has its shape because of matter propelled by Herschel 36

The Omega Nebula is a moderately bright nebula, sometimes called the Horseshoe Nebula or Swan Nebula. It has an integrated magnitude of 6.0 and is 4890 light-years from Earth. It was discovered in 1746 by Philippe Loys de Chésaux; observers since him have differed greatly in how they view the nebula, hence its myriad of names. Most often viewed as a checkmark, it was seen as a swan by George F. Chambers in 1889, a loon by Roy Bishop, and as a curl of smoke by Camille Flammarion.

The Trifid Nebula (M20, NGC 6514) is an emission nebula in Sagittarius that lies less than two degrees from the Lagoon Nebula. Discovered by French comet-hunter Charles Messier, it is located between 2,000 and 9,000 light-years from Earth and has a diameter of approximately 50 light-years. M20 is associated with a cluster that has a magnitude of 6.3.

Sagittarius also contains Messier 54 , the first globular cluster found to be located outside the Milky Way.

Astronomers believe that one of its components, known as Sagittarius A*, is associated with a supermassive black hole at the center of the galaxy, with a mass of 2.6 million solar masses. Although not visible to the naked eye, Sagittarius A* is located off the top of the spout of the Teapot asterism. In 1999 a violent outburst at V4641 Sgr was thought to have revealed the location of the closest known black hole to Earth, but later investigation increased its estimated distance by a factor of 15. The complex radio source Sagittarius A is also in Sagittarius, near its western boundary with Ophiuchus.


Large Sagittarius star cloud
Source: Creative Commons
Author:Guy Courtemanchee

Sagittarius lies along the meridian around mid to late August and we might be able to explore its beauty if the monsoons lift for us. Sagittarius is one of the more interesting constellations in the night sky due to the many bright Messier objects within it. It is a good way to spend time in this area of the night sky with your binoculars or Dobsonian telescope and eyepiece.

The Bucket List

by Vince Sempronio

All times are MST unless otherwise noted.

TERM OF THE MONTH

In honor of the Perseid meteor shower this month, let's review some terms associated with this event and the problems with working with dictionaries. The words/terms we will discuss are shooting stars, meteors, meteoroids, meteorites, asteroid, and radiant point.

Shooting stars are meteors?

It still surprises me that there are folks out there who are still unaware that shooting-stars have nothing to do with stars. The dictionary has a couple of definitions for this term, one being

"Any of several wild flowering plants in the genus *Dodecatheon*, mostly found in Western North America".

Well, that certainly is not what I would call a meteor, but the dictionary also offers up this definition.

"A *meteor*, especially a streak of light in the night sky, caused by a *meteoroid* burning up as it enters the Earth's atmosphere".

Ok, so a shooting-star is a meteor, but what if we don't know what a meteor is, or a meteoroid for that matter? Dictionary definitions in general can't describe something without using different words that we sometimes also might not know. The above definition of a shooting-star references the words meteor and meteoroid. Let's assume we don't know what those mean, so it is back to the dictionary, and we find that meteor has a few definitions.

1. A bright streak of light that appears in the sky when a meteoroid is heated to incandescence by friction with the earth's atmosphere.
2. A meteoroid or meteorite.
3. Any phenomenon or appearance in the atmosphere, as clouds, rain, hail, snow, etc.

Well, now we are getting somewhere. The first definition tells us more but references the second term meteoroid again. But the second definition says they meteor and meteoroid are basically the same thing and equates them to yet another term, meteorite as well. This implies that the terms can be used interchangeably, but they do have their own definitions. The third definition must be only used by Meteorologists (weather people), so we'll ignore that. I mean, who refers to rain falling as meteors! Out of the three, the first is the best description.

Looking up meteoroid in the dictionary and we find the following descriptions:

1. A solid body, moving in space, that is smaller than an asteroid and at least as large as a speck of dust.
2. A small body moving through space, or revolving about the sun, which on entering the earth's atmosphere would be deflagrated and appear as a meteor.
3. A relatively small (sand- to boulder-sized) fragment of debris in a solar system that produces a meteor when it hits the atmosphere.

This is a lot more useful. All three describe pretty much the same thing. We'll keep the first definition as it is the most concise. But the first definition refers to something called an asteroid. So, we have learned that a meteoroid is an object of some size that is at least as large as a speck of dust. One more deep dive between the pages and our dictionary describes an asteroid as:

"Any of numerous small solar system bodies that revolve around the sun, with orbits lying chiefly between Mars and Jupiter and characteristic diameters roughly between one and several hundred kilometers."

Does that imply that a rock in space that is less than one kilometer in size is not an asteroid?

I beg to differ. There have been many asteroid occultations which involved asteroids less than 1 km in diameter. If we can record an event of a rock in space passing in front of a distant star, in my view, the rock is considered an asteroid.

Digging deeper, I found this description on the Wikipedia page for meteoroids:

"Meteoroids are distinguished as objects significantly smaller than asteroids, ranging in size from grains to objects up to a meter wide."

The meteorite (asteroid?) that created Meteor Crater in Arizona was estimated to be 50 meters in diameter! Personally, I don't want to witness one that big.

This description is a lot closer to reality. In our lifetimes, we may only witness a few meteors that start out as 1-meter-wide rocks in space. I have witnessed only one of these events, the Peekskill Meteor of 1992. This event created a meteorite, which is the third "M" term in our discussion.

The Peekskill meteor didn't completely burn up when it entered our atmosphere on October 9th, 1992. A 28lb, 1-foot-wide piece of it, travelling 165 mph fell on the back of a car, punching a hole in the trunk.

A dictionary defines a meteorite as "A stony or metallic mass of matter that has fallen to the earth's surface from outer space." I wonder if chunks of a spacecraft qualify!

Well, that is accurate. It doesn't constrain the size of object and the only requirement is that the material lands on Earth.

So, to summarize, a meteoroid is an object between the size of a grain of dust to a rock about a meter across.

When a meteoroid enters the Earth's atmosphere, it becomes a meteor, and if there is enough mass to survive all the way to the surface, it is then a meteorite.

So, what is a radiant point?

To put the term in context, we must distinguish between two categories of meteors. Of course this means we have new terms to learn. Random meteors, which make up most of the meteors we see are called sporadic meteors, which are meteors that, from the dictionary is defined as "occurring occasionally, singly, or in irregular or random instances". I kind of like the term rogue, but that hasn't caught on.

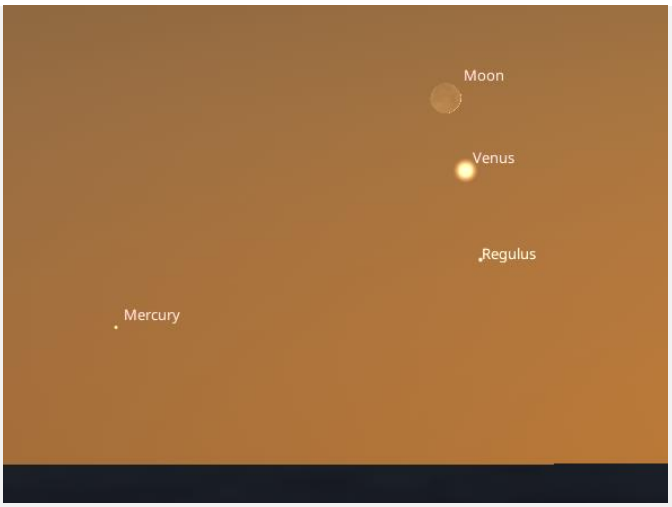
Location of the Perseids radiant just after midnight on the night of August 12th. Credit: Stellarium

The second category is meteor showers. These are multiple meteors that appear to originate from a single point in the sky. The meteors are associated with debris left over from passing comets. As the Earth plows through the dust and rocks from where the comet passed, many meteors can potentially be seen in a short amount of time. The meteors appear to radiate outward from the point of the radiant point (radiant), but the meteors are travelling in straight lines. This "optical illusion" is the same affect one sees when driving through a snowstorm. If you look straight ahead, the snowflake appears to spread out and move to the sides. This is because of the perspective, the flakes further away appear closer together. Meteor showers are named for the constellation from which the radiant occurs. So, this month's meteor shower, the Perseids, the radiant is located within the boundaries of the constellation Perseus.

It may take the Earth many days to pass through this debris. These occurrences are called Meteor Showers. The IAU Meteor Data Center had identified 100s of these. Check out their website for additional information.

So as far as the dictionary is concerned, a "shooting star" is a colloquial term for a meteor. But using that term doesn't convey if one knows the true nature of what they are observing. The secret password is to refer to them as meteors and those around you will know that you know what you are talking about!

IN THE SKY



Evening of August 5th, 7:45pm looking west. Credit: Stellarium

Highlights - August is best known for the Perseid meteor shower which peaks on the 12th this year, but a couple of days later observers can witness a conjunction, two transits and two eclipses within hours of each other. Keep reading for details!

The New Moon will occur early in the morning on the 4th. Over the next couple of nights, look for thin crescents in the western sky just after sunset.

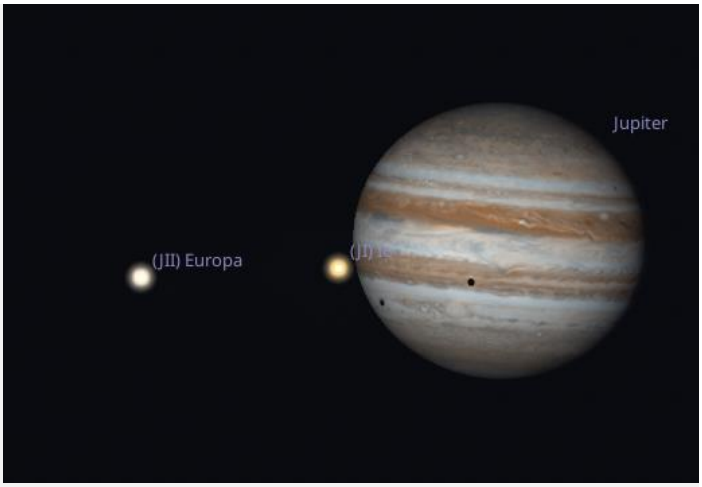
Meteors, meteors, and more meteors.

The quality of the Perseid meteor shower each year is usually dependent on the phase of the moon. This year, the 1st quarter moon falls near the peak of the shower, but it sets around 11pm on the night of the 12th making the moon a non-factor. At midnight, the radiant of the Perseid shower is high enough in the northeastern sky to offer some meteors in all direction. The later you observe, the more potential meteors you're able to see.

Fly me to the moon, let me play among the stars
Let me see what spring is like, on, Jupiter and Mars

Thanks, Frank. On the morning of the 14th, Jupiter and Mars will make a lovely duo in the eastern twilight before dawn. Both are visible together in a wide field eyepiece, spaced about half the width of a full moon. These conjunctions are striking with the naked eye but through a telescope, the sizes of both planets become apparent. Jupiter distends 36" while Mars is only 6". But keep in mind that Mars is 229 Mkm from Earth, while Jupiter is 894 Mkm away. Looking first at Jupiter, it is a very busy night for transits and eclipses. Starting at 2:00 am, all four of the Galilean moons are visible with Ganymede, Europa, and Io on the east side, and Castillo to the west. Also visible then is the shadow of Io on the eastern edge of the face of Jupiter. Events happen quickly at Jupiter; I can imagine the excitement Galileo felt when he first noticed the motion of what we now know to be moons orbiting Jupiter. Transits and eclipses of the Jovian moons are difficult to observe. You will need a steady sky, lots of aperture, and high magnification. At 2:00 am, Jupiter is only 13° above the eastern horizon which doesn't make observing events easier. Forty-five minutes later, at 2:45 am, another shadow appears on the eastern edge of Jupiter, this time, it is from Europa. Io

will also be very close to the eastern edge of Jupiter. Io's shadow will now be near the meridian of Jupiter.



Jupiter as seen at 2:45am, August 14th, 2024. Credit: Stellarium

Near 3:00 am, Io will begin to transit Jupiter. These transits are difficult to see since Jupiter is so much brighter than its moons. At 3:45 am, the shadow of Io will be easier to see as it will be elongated as it approaches the western edge of Jupiter. At 4:00 am, Io and the shadow of Europa will be aligned along the vertical meridian line of Jupiter. During its transit, Io will be in front of the Southern Equatorial Belt (SEB), making it easier to identify. The shadow of Europa is slightly further south, just below the bottom edge of the SEB. But the show is not yet over! At 5:00 am, both Io and Europa's shadow are drifting off the western edge of Jupiter's disk, and Europa itself is approaching the eastern limb of Jupiter. The dawn twilight is getting brighter, so spend a few minutes looking for Europa in front of Jupiter but don't forget to see Mars and Jupiter together in the same eyepiece FOV. Who knew Jupiter could create so much drama!

TRIVIA OF THE MONTH

For those of you who are devoted Star Trek fans will recognize the character in the above "I beg to differ" graphic as the Cardassian Elim Garak from the series "Star Trek: Deep Space Nine". He was played by the actor Andrew Robinson. In what 1971 movie did Andrew make his film debut as the serial killer "Scorpio", for which, IMHO, he should have received more recognition. The answer is at the end of the newsletter.

Speaking of Space

At the time of this publication, there were 12 humans in space. 6 Americans, 3 Russians, and 3 Chinese.

In addition, there are 4 Crew Vehicles in space.

- Shenzhou-18
- CST-100 Boe-CFT
- Soyuz MS-25
- SpaceX Crew-8

NASA Night Sky Notes - August 2024

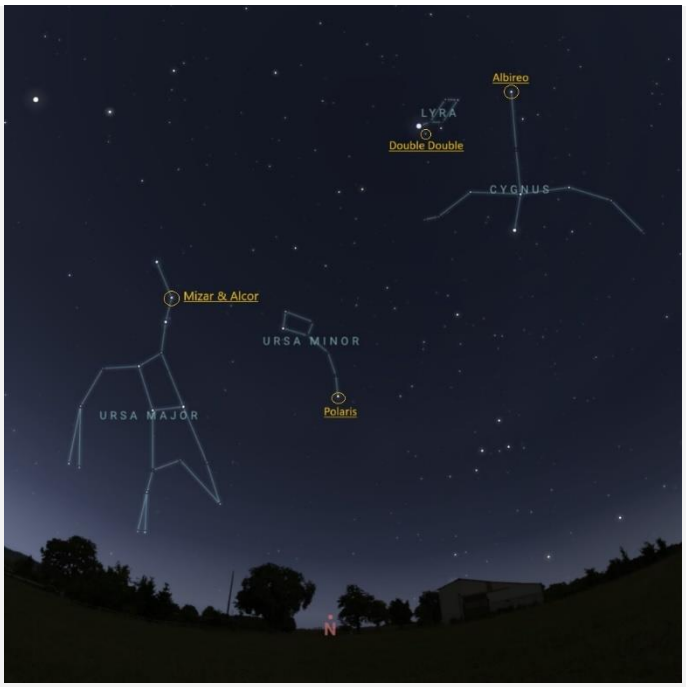
This article is distributed by NASA Night Sky Network

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

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!



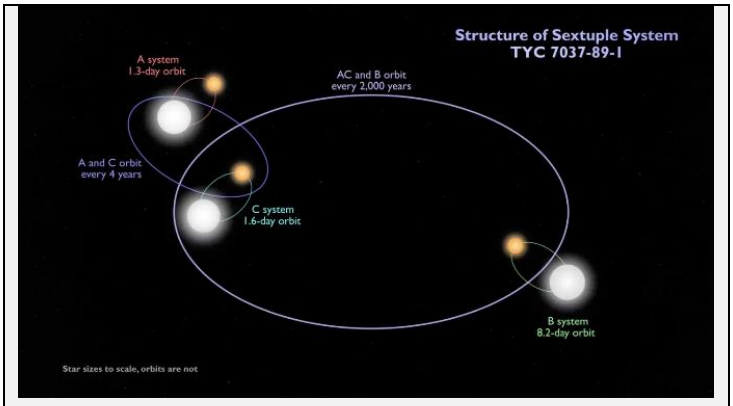
Mid-August night sky constellations with the following multiple star systems highlighted: the Double-Double in Lyra, Albireo in Cygnus, Polaris in Ursa Minor, Mizar and Alcor in Ursa Major. Credit: Stellarium Web

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.

The Veil Nebula
by Richard Pattie

Ten thousand years ago, before the dawn of recorded human history, a new light would suddenly have appeared in the night sky and faded after a few weeks. Today we know this light was from a supernova, or exploding star, and record of the expanding debris cloud as the Veil Nebula—also known as The Witch's Broom—a supernova remnant. Blasted out in the cataclysmic explosion, the interstellar shock wave plows through space sweeping up and exciting interstellar material. Imaged with narrow band filters, the glowing filaments are like long ripples in a sheet seen almost edge on, remarkably well separated into atomic hydrogen (red) and oxygen (blue) gas. The complete supernova remnant lies about 1400 light-years away towards the constellation Cygnus. This Witch's Broom spans about 35 light-years. The bright star in the frame is 52 Cygni, visible with the unaided eye from a dark location but unrelated to the ancient supernova remnant.

NGC6960 Veil Nebula West

Captured using a 100mm refractor telescope with a cooled mono astrophotography camera through Ha and O3 filters, processed in PixInsight. Total integration was 7h 40m.

Club Officers and Contacts

President: *Penny Brondum* ***Vice President:*** *Jim Reese*
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Past President: *David Roemer*

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Facebook Editor: *Richard Lighthill*

Website: *http://www.hacastronomy.org*
Facebook: *http://www.facebook.com/HuachucaAstronomyClub*
Email: *info@hacastronomy.org*

Club Meetings: Monthly at 7pm at the Cochise College Downtown Center at 2600 E Wilcox Drive, Sierra Vista, AZ in Room A102. Refer to the calendar for specific dates.

HAC Calendar of Events (July - August)

SU	MO	TU	WE	TH	FR	SA
Aug 4 **4:13 AM** Venus/Regulus 1.1°	**5** Venus/Moon 1.7°	**6**	**7**	**8**	**9**	**10** Spica/Moon 0.7°
11 Perseid meteors	**12** **8:19 AM** Perseid meteors	**13** Perseid meteors	**14** Antares/moon 0.0004° Mars/Jupiter conjunction	**15**	**16** HAC Meeting Room A102 Downtown 7PM	**17**
18	**19** **11:26AM**	**20** Saturn/Moon 0.5°	**21**	**22**	**23**	**24**
25	**26** **2:26 AM**	**27**	**28**	**29**	**30**	**31**
Sep 1	**2** **6:56 PM** **LABOR DAY**	**3**	**4**	**5** 5 PM Pat 20th Anniversary 7 PM Patterson Public Night	**6** Spica /Moon 0.5°	**7** Kartchner Star Party 6-9 pm
8 Saturn opposition	**9**	**10** **11:06 PM** Antares/Moon 0.1°	**11** **PATRIOT DAY**	**12**	**13**	**14** Solar Saturday at the S.V. library
15	**16**	**17** **7:34 PM** Saturn/moon 0.3°	**18**	**19**	**20** HAC Meeting Room A102 Downtown 7PM Neptune Opposition	**21**
22 Autumnal Equinox 5:44 AM	**23**	**24** **11:50 AM**	**25**	**26**	**27**	**28** Dine Under the Stars 5-9 PM
29	**30**	**Oct 1**	**2** **11:49 AM**	**3**	**4**	

All times local MST

Join HACAstro to keep up to date with all the Huachuca Astronomy Club events
Send an email to: HACAstro+subscribe@groups.io

From the Editor

You might have noticed that there are quite a few embedded blue “links” included in this month’s edition of our newsletter. The use of these links is to provide the reader with an easy way to explore more information about the selected term or concept. The links are provided by the authors of the articles or added by the editor. These links are accessible when reading the PDF version of the newsletter, but sorry, technology doesn’t yet allow us to accomplish this from the printed page! As the editor, I attempt to verify each link and I hope that you will enjoy this new feature.

Trivia Question Answer: “Dirty Harry”