Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

www.mvastro.org

Membership Meeting

Saturday, August 8th 2015
7:00pm at the
Herrett Center for Arts & Science
College of Southern Idaho.

Public Star Party Follows at the Centennial Observatory

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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

President's Message

Colleagues,

August can mean only one thing: The City of Rocks Star Party, set for Friday, August 14th, and Saturday, August 15th. For the eighth straight year, we will converge on Castle Rocks State Park in southern Cassia County to gape at some of the darkest skies in Idaho, where the Milky Way can bright enough to be a distraction. It's here where some of us got our first start at astronomy, and it's here where some of us were finally convinced that dark nebulae can indeed be seen. It's here where we have met wounded veterans making a little more out of their lives, and it's here where we've overheard others discuss in languages other than English what they've seen, such as a husband describing the bands of Jupiter to his wife in French. Rumor has it even Polish has been heard. And this year, we might even get some of those who have been trying their hands at the new fish pond near the lodge and are looking for a way to put a cap on a perfect day. There might even be a wedding reception in the area.

Yes, it can mean needed publicity and outreach (KMVT's visit a couple of years ago comes to mind), but it's also a time for camaraderie. Each evening, around 6:15 p.m. or so, we'll hold a potluck barbeque, likely over at the bunkhouse. The bunkhouse has a few slots for people to stay, and we've reserved six campsites over at the Smoky Mountain – but those are going fast. If you haven't contacted Rob Mayer, please check with him about your options in case you're thinking of dropping in.

For those new to the party, we'll start the day at 2 p.m. at the Smoky Mountain Campground for solar viewing until 6 p.m., head over to the barbeque at the bunkhouse and then set up for the star party nearby. If you don't want to haul a telescope up to Almo, but would like to participate, contact us. We can always bring up a loaner scope, but even if you don't want to even operate a scope, come on up. Photographers and wanderers are always welcome.

And there's even Wi-Fi in two places in Almo now.

The timing of the star party still means a regular monthly board meeting and general meeting at the Herrett Center the week before, on Saturday, Aug. 8th. The board meeting, open to the public, will start at 5:45 p.m., and the general meeting will be at 7 p.m. The title of the presentation, "Alcor and Mizar: What You Already Knew and What You Really Didn't." Afterwards will be the regular star party at the Centennial Observatory. While we can always use a few hands up on the deck at the observatory, please feel free to bring your own scope and set it up on the lawn in front of the Herrett Center. We returned to this old habit back in June, and had some pretty good success; we would have done so in July, but the weather got us. I know I'll be there, and I suspect Terry Wofford will be as well.
No matter what, August looks to be a great month. If you're hesitant because of past inclement weather, take a look at what happened at Pomerelle last month: Even though the weather threatened, volunteers were rewarded with great views thanks to a new set-up that's easier on everyone. Let's hope City of Rocks will be even better.

Looking forward to seeing you all there,
Rob Mayer

Calendars for July

Event Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5	6	7 Last Quarter Moon 	8 General Membership Mtg. 19:00 Herrett Center Public Star party follows Centennial Observatory
9	10	11	12	13	14 New Moon City of Rocks S.P. Almo, ID 	15 City of Rocks S.P. Almo, ID 
16	17	18	19	20	21	22 First Quarter 
23	24	25	26	27	28	29
30	31					

Snake River Skies is the Newsletter of the Magic Valley Astronomical Society and is published electronically once a month.

August Celestial Calendar and Trivia

8/1 The astronomical cross-quarter day known as Lammas or Lughnasadh occurs today
8/2 The Moon is at perigee, subtending nearly 33'13" from a distance of 362,139 kilometers (252,023 miles); Saturn is stationary.
8/5 Mercury is 8° north of Venus; Uranus is 1° north of the Moon.
8/7 Mercury is 0.6° north of Jupiter; Mercury is 1° north of the first-magnitude star Regulus.
8/8 Venus is at aphelion today; asteroid 2 Pallas is stationary
8/9 The Moon is 0.7° north of the Tauri.
8/10 Jupiter is 0.4° north of the first-magnitude star Regulus.
8/13 Mars is 6° north of the Moon; the peak of the Perseid meteor shower (a zenithal hourly rate of 60 to 100 per hour) occurs in the early morning.
8/15 Venus is in inferior conjunction; Mercury is 2° north of the Moon.
8/16 Asteroid 4 Vesta is stationary.
8/18 The Moon is at apogee, subtending 29'17" from a distance of 405,848 kilometers (252,182 miles).
8/19 Mercury is at the descending node today
8/20 Mars is 0.5° south of the bright open cluster M44 (the Beehive or Praesepe) in Cancer.
8/22 Saturn is 3 degrees south of the Moon.
8/26 Jupiter is in conjunction with the Sun.
8/29 Mercury is at aphelion today.
8/30 The Moon is at perigee, subtending nearly 32'59" from a distance of 358,290 kilometers (222,631 miles).
8/31 Venus is at its greatest heliocentric latitude south today

John Flamsteed and Maria Mitchell were born this month. The gibbous phase of Mars was first observed by Francesco Fontana on August 24, 1738. William Herschel discovered Enceladus on August 28, 1789. Asaph Hall discovered Deimos on August 11, 1877 and Phobos on August 17, 1877.

The peak of the Perseid meteor shower is not adversely affected by moonlight this year. Comet 109P/Swift-Tuttle is the source of Perseid meteors.

The Moon is 15.9 days old, is illuminated 99.6%, and is located in Aquarius on August 1st at 0:00 UT. The Moon is at its greatest northern declination on August 10th (+18.3 degrees) and its greatest southern declination on August 25th (-18.2 degrees). Longitudinal libration is at a maximum of +6.2 degrees on August 9th and -7.3 degrees on August 24th. Latitudinal libration is at a maximum of +6.7 degrees on August 10th and a minimum of -6.8 degrees on August 25th. The Moon passes two degrees south of Mars on August 13th, two degrees south of Mercury on August 15th, and three degrees north of Saturn on August 25th. New Moon (i.e., the dark of the Moon) occurs on August 14th. The Moon is at perigee on August 2nd and August 30th and apogee on August 18th. Large tides will take place on August 31st. The Moon occults Uranus on August 5th and Aldebaran on August 9th from certain parts of the world.

The Sun is located in Cancer on August 1st.

The Planets

This month Mercury, Venus, and Jupiter are visible in the west, Saturn in the southwest, and Neptune in the east during the evening. At midnight, Saturn can be found in the southwest, Uranus in the east, and Neptune in the southeast. In the morning, Venus and Mars are in the east, Uranus is in the south, and Neptune is in the southwest.

At midmonth, Mercury is visible in evening twilight, Mars rises at 5:00 a.m. local daylight time, Jupiter is visible in evening twilight, and Saturn sets at midnight for observers at latitude 40 degrees north.

Mercury and Jupiter form a close pair from August 5th through August 8th. The two planets lie within a degree of each other on August 6th and August 7th. On the evening of August 6th, Jupiter (magnitude -1.7) is 0.6 degree to the lower left of Mercury (magnitude -0.7). Mercury is in the process of entering the evening sky this month and Jupiter is in the process of exiting it. Mercury is two degrees north of the waxing crescent Moon on August 15th and is at aphelion on August 29th. As August progresses, Mercury increases its angular separation from the Sun, attaining an altitude of seven degrees above the western horizon 30 minutes after sunset by August 31st.

On the evening of August 1st, Venus is less than 7% illuminated and appears as a very thin crescent 53 arc seconds in size. When Venus reaches aphelion on August 8th, it will be approximately 2.5 light-minutes from the Earth. Venus passes almost eight degrees south of the Sun when it is in inferior conjunction on August 15th. Venus and Mars are nine degrees apart on August 29th, the second of three conjunctions of the two planets this year.

Venus rises more than 90 minutes before the Sun by month's end. By that time, it increases in brightness to magnitude -4.5, decreases in apparent size to 52 arc seconds, and increases in phase to 9% illuminated.

Mars emerges from the glare of the Sun during morning twilight as August progresses. At midmonth, it shines faintly at magnitude +1.7 as it rises 90 minutes before sunrise. By the end of August, Mars rises two hours before the Sun. The Red Planet passes by the open cluster M44 on the mornings of August 20th and August 21st but observing the two objects will be rather difficult.

Jupiter disappears into evening twilight during early August. The gas giant is in conjunction with Mercury on August 7th. On August 10th, Jupiter undergoes the only conjunction with Regulus in this cycle of its 12-year-long orbit. Jupiter is in conjunction with the Sun on August 26th.

During August, Saturn is positioned 13 degrees northwest of the first-magnitude star Antares. The Ringed Planet subtends 17 arc seconds in angular size this month. Its rings are inclined by 24 degrees and span 38 arc seconds. On August 2nd, Saturn ends its retrograde motion through eastern Libra. Saturn is at eastern quadrature (i.e., 90 degrees east of the Sun) on August 21st. It is 9% smaller at that time than at opposition and appears more three dimensional than usual due to the greater angle of the sunlight illuminating the planet. Eighth-magnitude Titan, Saturn's largest satellite, is due north of the planet on August 7th and August 23rd and due south on August 14th and August 30th. The peculiar satellite Iapetus shines at tenth magnitude as it passes 8.3 arc minutes from Saturn and reaches greatest western elongation on August 6th. It fades to eleventh magnitude by August 25th when it is 2.1 arc minutes north of Saturn.

Uranus rises approximately 90 minutes after Neptune and can be found 0.6 degree from the fifth-magnitude star Zeta Piscium this month. During the course of August, Uranus moves from a position southeast of that star to one that's slightly southwest.

Neptune continues to retrograde through Aquarius. The eighth planet is located 3.4 degrees southwest of Lambda Aquarii at the end of August. It reaches opposition (magnitude +7.8, apparent diameter 2.4 arc seconds) for Western Hemisphere observers on August 31st.

On August 1st, Pluto is positioned approximately midway between the stars Xi-1Sagittarii (magnitude +5.0) and Xi-2 Sagittarii (magnitude +3.5). It is about 35 arc minutes west-northwest of Xi2 Sagittarii by the end of August.

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

Notable carbon star for August: V Aquilae

The Deep Sky

Top ten binocular deep-sky objects for August: Cr 399, IC 4756, M8, M11, M17, M22, M24, M25, M27, NGC 6633 (IC 4756 and NGC 6633 are collectively known as the Binocular Double Cluster)

Top ten deep-sky objects for August: M8, M11, M16, M17, M20, M22, M24, M27, M55, M57

Challenge deep-sky object for August: IC 4665 Ophiuchus

A fine cluster for binoculars or a wide-field eyepiece, IC 4665 is wider than the Full Moon, and easily found 1.5° northeast of Beta Ophiuchi. © Bob Franke

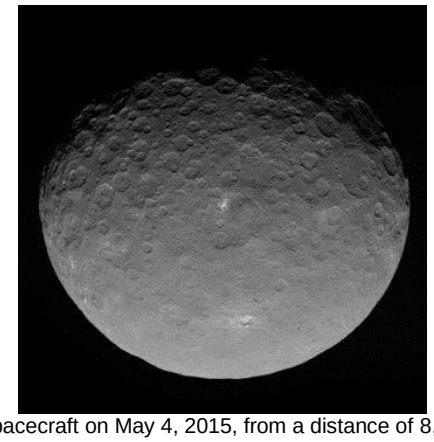
Standing along the stream of the summer Milky Way is the large constellation Ophiuchus, the Serpent Bearer. According to mythology, Ophiuchus was the physician who accompanied Jason and the Argonauts in their quest for the Golden Fleece. Appropriately, he is depicted in the sky as holding a serpent, a symbol of wisdom and healing. Aside from his serpent, Ophiuchus bears many fine examples of nearly every type of deep sky object. Some are big and splashy, while others appear as modest enhancements of the background star field. **IC 4665** lies somewhere in between.

This large open cluster just northeast of Beta Ophiuchi is a nice binocular sight, consisting of several dozen 7th- and 8th-magnitude stars. Though its stellar density is not very high, IC 4665 stands out well thanks to the sparseness of its environment. On dark, clear nights, and just with the naked eye, the cluster may be seen as a hazy spot measuring nearly two Full Moons across.

IC 4665 is still an attractive star cluster in a telescope, at low magnification – not from any virtue of concentration, which it most certainly lacks, but from the uniform brilliance of its brightest stars, which with larger apertures are really bright. The group appears as a ring with a short “handle” on its northwestern side and a single bright star almost at its center. The “handle” consists of four progressively fainter stars arching northwest and then west away from the ring.

The stars of IC 4665 are scattered over a 1° area; because the cluster is about 1,400 light-years distant, its full diameter must therefore be around 30 light-years. IC 4665 is anywhere from 30 to 40 million years old – relatively young in astronomical terms! This places it somewhere between the age of the Jewel Box cluster in the southern constellation Crux and the Pleiades.

Asteroids



Ceres viewed by the Dawn spacecraft on May 4, 2015, from a distance of 8,400 miles (13,600 kilometers).

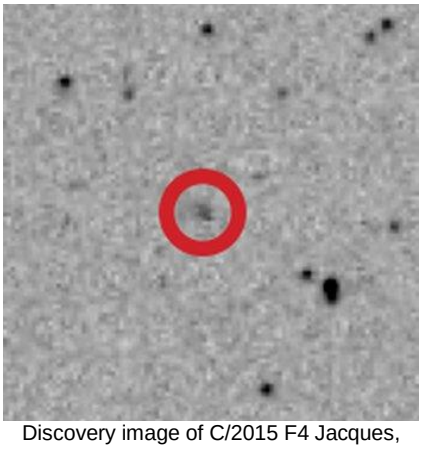
On January 1, 1801 (the first day of the new century), Father Giuseppe Piazzi was observing the sky from his home in Sicily when he happened upon a faint starlike object in the constellation Taurus. No doubt, he thought it strange that this star did not appear on his charts of the region. He marked its position relative to the other known stars and made it a point to return to that area on the next clear night. After a few days passed, he found, to both his surprise and delight that his “star” had moved! The Italian astronomer had just discovered the first object in the asteroid belt between Mars and Jupiter.

Ceres – once the largest asteroid, now the smallest “dwarf planet” – comprises about a third of the estimated total mass of the asteroids in the solar system, or about 4-percent of the mass of the Moon. It rotates once every nine hours, its brightness showing little variation, which is indicative of a fairly uniform surface, thought to be powdery in nature. Ceres lies among the background stars of eastern Sagittarius, 20° east of the constellation’s conspicuous “Teapot” asterism. For Northern Hemisphere observes this region is highest around midnight local daylight time, some 20° above the southern horizon from latitudes close to 40° north. If you can see the whole Sagittarius “Teapot” asterism, you have a low enough southern view for Ceres. Ceres glows at 8th magnitude during the month, just a bit fainter than when it reached opposition and peak visibility in July’s final week. Binoculars should easily show it on any clear night, but a small (or big) telescope would be the better bet. The dwarf planet will readily identify itself by its movement within the star field, shifting by about 10’ during a twenty-four hour period.

Comets

C/2014 Q2 Lovejoy on June 6, 2015.
Although the comet has faded significantly,
it remains an easy telescope target throughout August.
© Norbert Mrozek

Australian amateur astronomer Terry Lovejoy discovered comet **C/2014 Q2 Lovejoy** one year ago, on the night of August 17. His name is already familiar to many stargazers around the world, as a pioneer of early digital SLR imaging and discoverer of no less than five comets. The comet brightened to roughly magnitude +4 in January this year and became one of the brightest comets located high in a dark sky in years. Observers throughout the world managed to spot it with the unaided eye, even from mildly light polluted suburban locations. Despite receding from both the Earth and Sun, Comet Lovejoy is still hovering around magnitude +10. It clips through the constellations Draco and Bootes and, as the month begins, it lies less than 2° southwest of 3rd-magnitude Ed Asich (Iota Draconis). A 6-inch telescope under country skies should reveal the comet as a small fuzz ball roughly 5' across, not unlike a globular cluster. C/2014 Q2 Lovejoy is a circumpolar object, meaning it does not set as seen from mid-northern latitudes. It hovers well above the Big Dipper's handle in the evening above the northwestern horizon, and dips below the bowl of the Little Dipper in the wee morning hours.



Discovery image of C/2015 F4 Jacques,
obtained with an 11-inch (0.28 meter) f/2.2 astrograph at SONEAR Observatory in Brazil.
C. Jacques / E. Pimentel / J. Barros / SONEAR

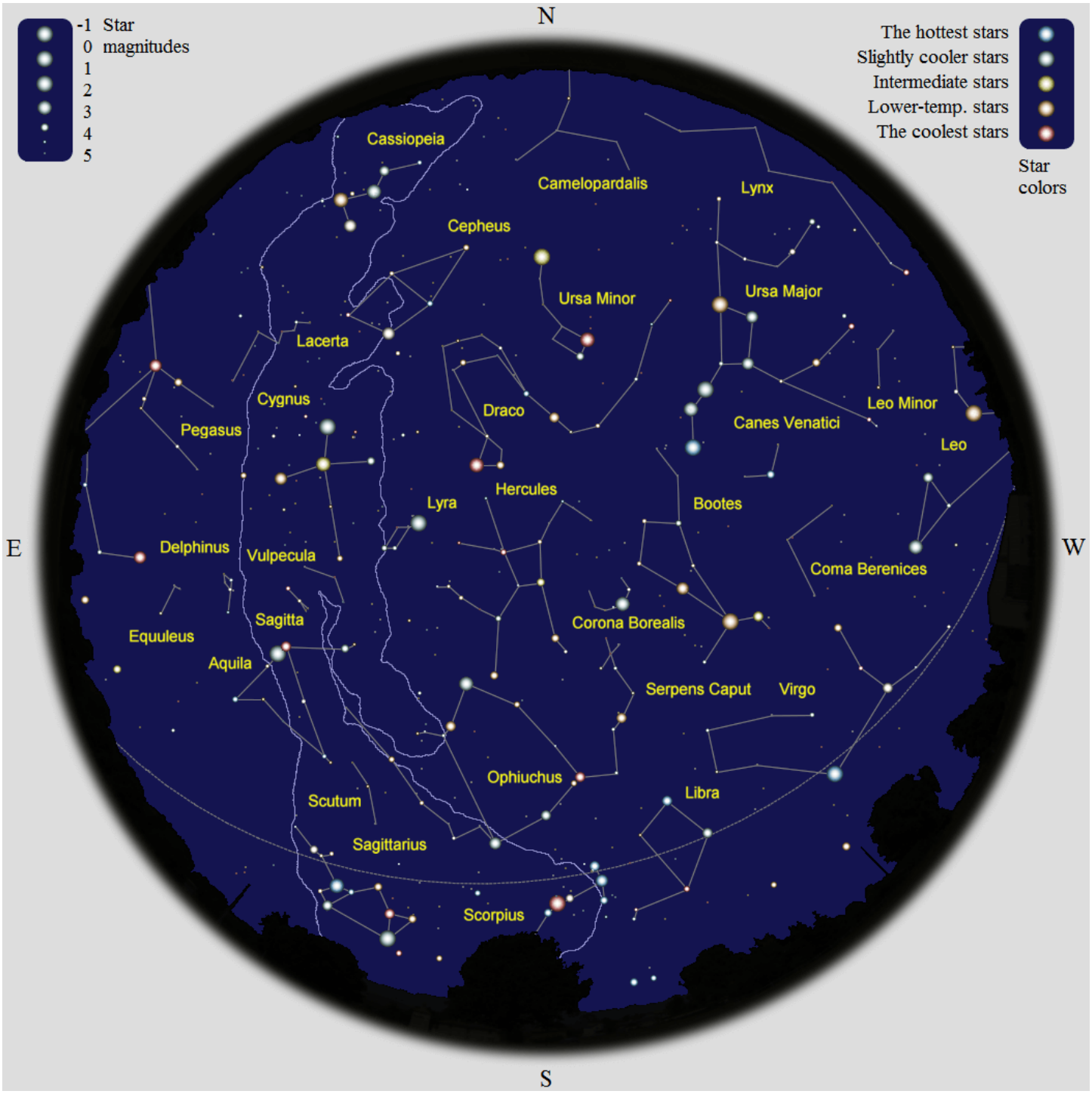
As the sky darkens on August evenings, a solar system visitor lies due east and more than two-thirds of the way from the horizon to the zenith. Comet **C/2015 F4 Jacques** sweeps from Cygnus to Lyra during the month and remains visible all night for most mid-northern observers. The comet glows dimly, with the combined light of a +10.5 magnitude star, but should be in the reach of a 6-inch telescope if you observe from a location with dark skies, far from the glare of the city. At the beginning of the month, F4 Jacques is only 2.5° north of the spectacular double star Albireo, so you should have no trouble finding it. As August progresses, the comet moves slowly to the northwest, and by the 31st you can find it 4° northeast of brilliant Vega. Do not expect a spectacular sight when you have the comet in your eyepiece's field. C/2015 F4 Jacques appears only 3' across, with a faint stellar nucleus and no hint of a tail. Try to use a range of magnifications to see all of the comet's features – while one magnification may give you the best overall view, the extremes can be revealing.

Meteors

Perseid meteor from last year's shower, above Broken Arrow in northeastern Oklahoma. Cheryl Welch

The **Perseid meteor shower** ranks among the most famous because it occurs during the warm nights of August. This shower never fails to provide an impressive display, even though it declined in strength since 1992, when the parent comet 109P Swift-Tuttle passed closest to Earth. This year peak activity comes Wednesday night (August 12-13), under optimal conditions, with the Moon out of the sky. Observers with clear and dark skies can expect to see 80 or more shooting stars every hour.

Planisphere for July

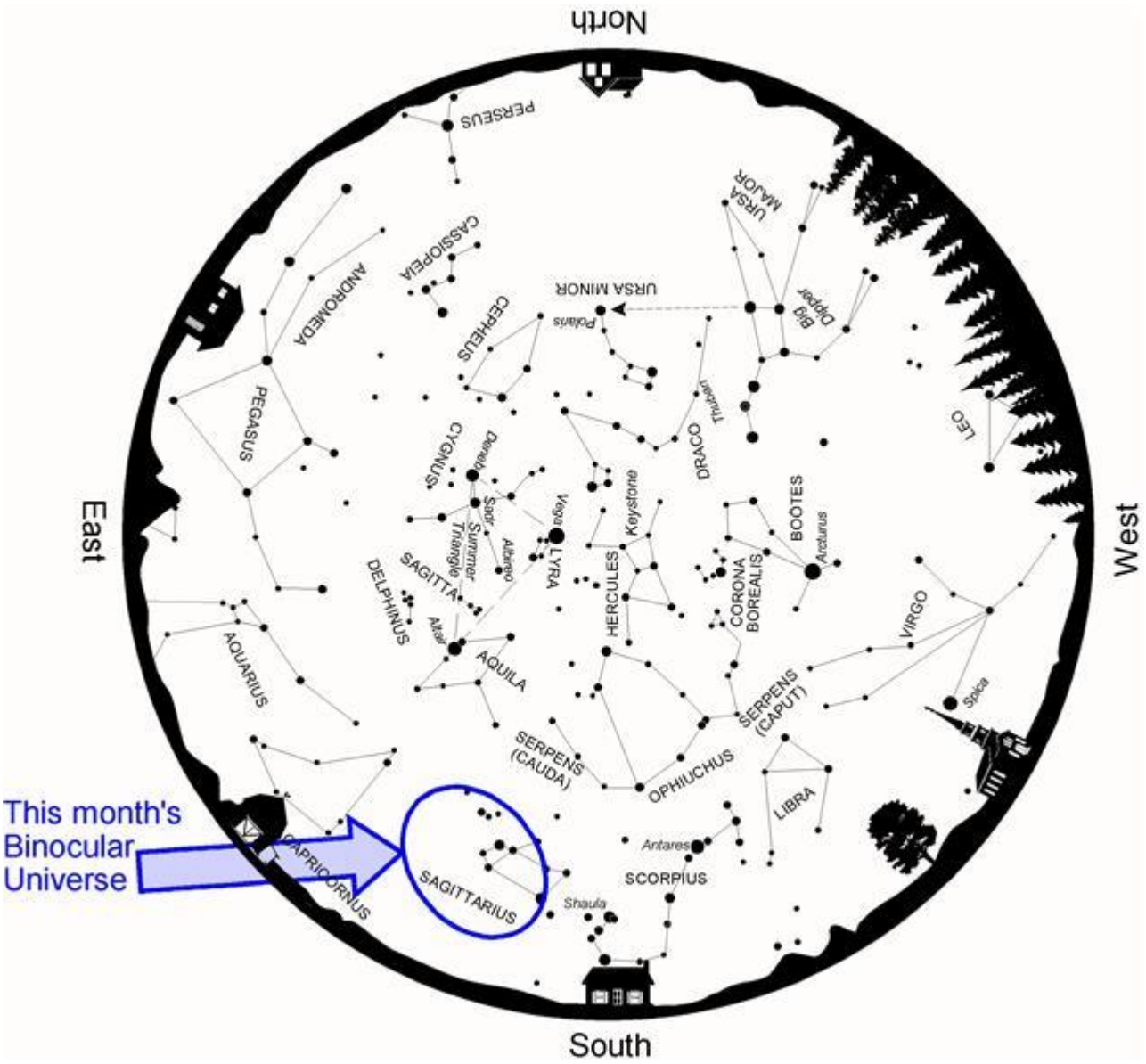


Be Safe – Get Out There – Explore Your Universe

Binocular Universe

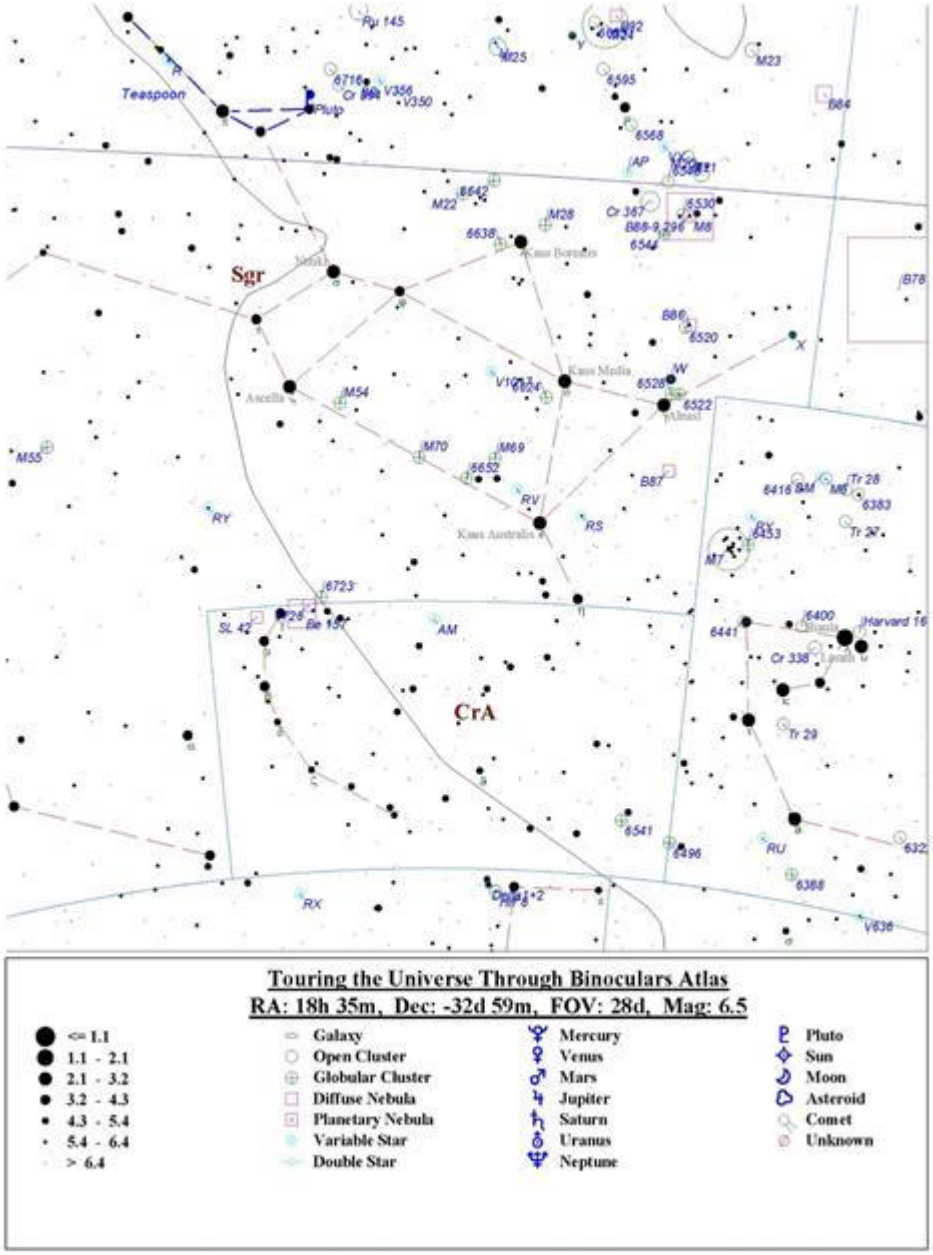
Would you like a spot of tea? Of course, I'm speaking of the sky's Teapot, Sagittarius. Known in ancient times as an archer, with his arrow aimed tentatively toward Scorpius immediately to the west, Sagittarius is usually portrayed as a centaur: a mythological half-man, half-horse creature.

To modern eyes, however, the constellation's 8 brightest stars form a perfect teapot, complete with lid, spout, and curved handle. And its tea must be ready, judging by all of the steam billowing out of the spout in the form of the Milky Way!



Above: Summer star map from Star Watch by Phil Harrington.
Click the chart to open a printable PDF version in a new window.

Using our binoculars and a little imagination, it's easy to add a **Teaspoon** to our setting. The late astronomy writer George Lovi (1939-1993) pointed toward a triangle of faint stars to the northeast of the Teapot's handle and suggested that by attaching two faint stars a little farther to east still, we have a perfect teaspoon. The spoon's stars -- Nu (ν), Rho-1 (ρ), 43, Pi (π), Omega (ω), and Xi-1 (ξ-1) and Xi-2 (ξ-2) Sagittarii -- are just visible by eye under dark skies, and are an easy catch with binoculars.



Above: Finder chart for this month's Binocular Universe.
Chart adapted from **Touring the Universe through Binoculars Atlas** *(TUBA)*
Click the chart to open a printable PDF version in a new window.

The close-set pair of stars **Xi-1 and Xi-2 Sagittarii** adds additional luster to the Teaspoon, but don't be fooled by looks alone. What looks like a true binary star through our binoculars turns out to be just a chance, line-of-sight alignment. Xi-1, a blue supergiant, is more than 2,300 light years away, but Xi-2, a yellow dwarf a bit cooler than our Sun, is just a scant 372 light years from us.

If you take a look at the chart above, you'll see we have an interloper next to the tip of the spoon. None other than everyone's favorite (dwarf) planet, **Pluto**! Dubbed "Planet X" by astronomers of the late 1800's, Pluto had been the subject of an extensive 25 year long search before its existence could be confirmed. On February 18, 1930, a young astronomer named Clyde Tombaugh discovered Pluto using a specially designed camera at Lowell Observatory in Flagstaff, Arizona. Though only seen as a dim point of light on his photographic plates, Tombaugh was able to discern the (dwarf) planet by its motion against the starry background.

Of course, I don't have to tell readers of this column that little Pluto made BIG headlines last month as the New Horizons spacecraft successfully flew past Pluto and its system of moons after a 9-plus year journey. Haven't the images been amazing? To keep up with the latest releases, be sure to bookmark http://pluto.jhuapl.edu/.

Back here on Earth, even when Pluto is at its best, it remains an extremely faint object. With a brightest magnitude of only 13, it stays far below the detection threshold of binoculars. But it's there tonight nonetheless, so be sure to pay it a visit, even if only philosophically.

How many lumps of sugar would you like with your tea? We have five to spot through our binoculars -- five globular clusters, that is. Through telescopes, these clusters look like mounds of sugar poured onto a velvety black background. While we may not be able to resolve these clusters into separate stars, their confectionary appearance through binoculars do indeed remind us of distant sugar cubes.

The sweetest globular of the bunch is **M22**. Look toward Kaus Borealis at the top of the Teapot's lid, and then scan just to the east. M22 will look like a blurry, round disk next to an isosceles triangle of faint stars. Many observers, myself included, find M22 to be the finest globular visible from most of the northern hemisphere, outclassing even mighty M13 in Hercules.

Now, pan just to the northwest of Kaus Borealis for a second, much tougher globe of distant stars. Through binoculars, **M28** looks like a very small smudge in between Kaus Borealis and a dim field star. It's much harder to find than its more impressive neighbor, but take your time and M28 will eventually surrender to your hunt.

Our final three globulars lie along the bottom of the Teapot, but be forewarned, they are daunting tests through binoculars. Use a pair of fainter stars to the east of the star Kaus Australis as a guide. **M69** is just to their north, while **M70** is to their east. M69 and M70 each shine at only 8th magnitude, so wait for an especially clear, haze-free sky before trying your luck. Under better than average conditions, I can see each as a faint, slightly fuzzy "star" with my 10x50s.

The third globular in this area, **M54**, is easiest to find by starting at Ascella, the Teapot's lower left star. M54 lies directly to its west, just south of a triangle of dim stars. Like its two compatriots, M54 will impress you as a tiny, blurry point of light highlighted by a slightly brighter center.

No proper tea drinker would indulge without some lemon. Continuing his imagery, Lovi suggested that the faint arc of stars to the south of the Teapot is our slice of lemon. That's actually the dim constellation **Corona Australis**, the Southern Crown, but it works well for this dual purpose. Again, the stars are visible by eye, but binoculars will help to trace out the full arc.

Lying along the southern Milky Way, Corona Australis offers many attractive star fields for the cruising binocularist to pause at, as well as a bright globular cluster and a selection of challenging nebulae.

Have you ever seen **NGC 6541**? NGC 6541 is the brighter of the constellation’s two globular clusters (the other, NGC 6496, is too faint for most binoculars). Set in a pretty field of stars just south of a 5th-magnitude sun, NGC 6541 appears as a not quite stellar point of light through 7x and 10x glasses. My 16x70s reveal a distinct disk with a brighter core, although conventional binoculars won’t be able to resolve any of its stars.

Just west of Gamma Coronae Australis is a pretty grouping of stars shining between 6th- and 8th-magnitude that form a pleasant sight through binoculars. While they are plain enough, can you make out any evidence of the reflection nebulosity that also occupies this region? The brightest portion, **NGC 6729**, surrounds an 8th-magnitude star just west of Gamma. Nebula hunters will find it a difficult test even through giant glasses, since the light from Gamma tends to flood the field and obliterate the delicate cloud. If you are able to spot it, however, I’d love to hear about it in this column’s discussion forum.

Southern Sagittarius and adjacent Corona Australis are chock full of tasty crumpets to enjoy with your celestial tea, including those in this printable PDF version.

On The Brightness of Venus

By Dr. Ethan Siegel

Throughout the past few months, Venus and Jupiter have been consistently the brightest two objects visible in the night sky (besides the moon) appearing in the west shortly after sunset. Jupiter is the largest and most massive planet in the solar system, yet Venus is the planet that comes closest to our world. On June 30th, Venus and Jupiter made their closest approach to one another as seen from Earth—a conjunction—coming within just 0.4° of one another, making this the closest conjunction of these two worlds in over 2,000 years.

And yet throughout all this time, and especially notable near its closest approach, Venus far outshines Jupiter by 2.7 astronomical magnitudes, or a factor of 12 in apparent brightness. You might initially think that Venus's proximity to Earth would explain this, as a cursory check would seem to show. On June 30th Venus was 0.5 astronomical units (AU) away from Earth, while Jupiter was six AU away. This appears to be exactly the factor of 12 that you need.

Only this doesn't explain things at all! Brightness falls off as the inverse square of the distance, meaning that if all things were equal, Venus ought to seem not 12 but 144 times brighter than Jupiter. There are three factors in play that set things back on the right path: size, albedo, and illumination. Jupiter is 11.6 times the diameter of Venus, meaning that despite the great difference in distance, the two worlds spanned almost exactly the same angular diameter in the sky on the date of the conjunction. Moreover, while Venus is covered in thick, sulfuric acid clouds, Jupiter is a reflective, cloudy world, too. All told, Venus possesses only a somewhat greater visual geometric albedo (or amount of reflected visible light) than Jupiter: 67 percent and 52 percent, respectively. Finally, while Venus and Jupiter both reflect sunlight toward Earth, Jupiter is always in the full (or almost full) phase, while Venus (on June 30th) appeared as a thick crescent.

All told, it's a combination of these four factors—distance, size, albedo, and the phase-determined illuminated area—that determine how bright a planet appears to us, and all four need to be taken into account to explain our observations.

Don't fret if you missed the Venus-Jupiter conjunction; three more big, bright, close ones are coming up later this year in the eastern pre-dawn sky: Mars-Jupiter on October 17, Venus-Jupiter on October 26, and Venus-Mars on November 3.

Keep watching the skies, and enjoy the spectacular dance of the planets!

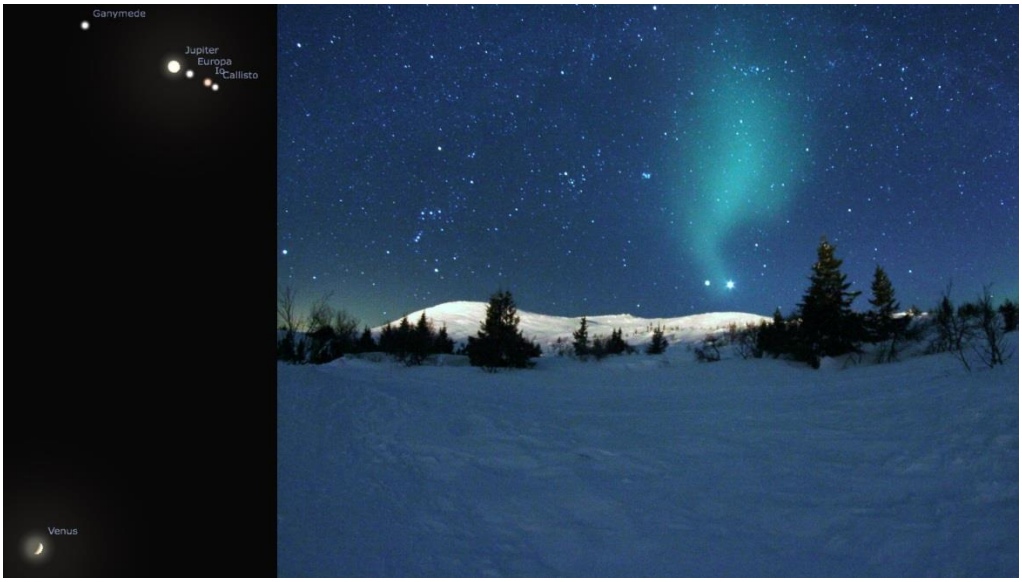


Image credit: E. Siegel, using the free software Stellarium (L); Wikimedia Commons user TimothyBoocock, under a c.c.-share alike 3.0 license (R). The June 30th conjunction (L) saw Venus and Jupiter pass within 0.4° of one another, yet Venus always appears much brighter (R), as it did in this image from an earlier conjunction.

Observatories and Planetarium

Bruneau Dunes Observatory – Bruneau, ID

You're invited to star gaze at the Bruneau Dunes Observatory! See the night sky as you've never seen it before. Observatory tours and solar viewing (through a specially adapted telescope) begin one hour before sunset, and are free of cost. Following that, visitors can view short orientation program and then have the chance to survey the heavens through the observatory's collection of telescopes. There is a viewing fee of $3 per person (children 5 and under are free of cost) for this. The observatory is open to the public from early Augustthrough mid-October on Friday and Saturday nights only, weather permitting. For presentation times, call 208-366-7919, or check the kiosk when you arrive at the park.

See our video: https://www.youtube.com/watch?v=v_TnnWx75k0#t=226

Centennial Observatory at the Herrett Center
College of Southern Idaho – Twin Falls, ID
www.herrett.csi.edu

Event	Place	Date	Time	Admission
Summer Solar Session #11	Centennial Observatory	Wednesday, August 5th	1:30 to 3:30 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, August 8th	9:30 PM to midnight	FREE
Summer Solar Session #12	Centennial Observatory	Wednesday, August 12th	1:30 to 3:30 PM	FREE
City of Rocks Star Party (8th annual)	Castle Rocks State Park, Almo, Idaho	Friday, August 14th & Saturday, August 15th	2:00 PM to 12:00+ AM	FREE (park day use fees apply)
Summer Solar Session #13	Centennial Observatory	Wednesday, August 19th	1:30 to 3:30 PM	FREE
Summer Solar Session #14	Centennial Observatory	Wednesday, August 26th	1:30 to 3:30 PM	FREE

About the Magic Valley Astronomical Society

Magic Valley Astronomical Society
P.O. Box 445
Kimberly, ID, USA 83341

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, $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.

Membership Benefits:
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 circa 1980.