

# Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

[www.mvastro.org](http://www.mvastro.org)

## Membership Meeting

Saturday, September 14<sup>th</sup> 2019  
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

## MVAS President's Message

August 2019

Colleagues,

Yes, summer is starting to wind down, but there are still viewing opportunities out there. For some of you, however, the main challenge may be the task of hauling out a large telescope, or simply not having a large telescope. This month, our speaker will help you get around that problem.

Bill Cook, who has published two books on binocular astronomy, will be our speaker this month. We look forward to hearing from another MVAS member and his or her expertise, just as we heard in our August meeting from Jim Tubbs on spectroscopy. In my own experience, too many of us ignore this valuable tool in astronomy. For example, if you're trying out the Astronomical League's Messier Program, you can pull in several Messier objects with just a small pair of 7x35 binoculars at any dark site, especially City of Rocks. While you may think the Andromeda galaxy, Lagoon Nebula, and the Pleiades come to mind, one of my favorite views and test of seeing conditions is pulling in M33, the Triangulum Galaxy, from my backyard in Rupert. Join us Saturday, Sept. 14, at 7 p.m., in the Herrett Center to learn more.

By then, we will have had a couple of viewing events completed. Tim Frazier has already come back from the Aug. 23<sup>rd</sup> Boise Astronomical Society's star party at Stanley, part of the Idaho Dark Sky Preserve, and we as a group were looking into going to Hagerman the last Saturday of August. We'll get some reports on that as well.

As for getting out in September, our original schedule had the Craters of the Moon Fall Star Party scheduled for Sept. 27 and 28, but it no longer appears on the Craters' website. I have put in an inquiry to the staff there, but may still go up there no matter what I learn, and I'd love to have some of you along.





Lastly, we're getting close to the time of year where we hold elections for officers and present the MVAS Year in Pictures. If you have any nominations or pictures, please contact me.

Clear views,

Rob Mayer

# Calendar

September 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2 Labor Day 	3	4	5	6 First Quarter Moon  Visible: 54% ↑ Age: 7.73 days	7
8	9	10	11	12	13 Full Moon 100% Visible  Corn Moon	14 MVAS Meeting at 7:00pm at the Herrett Center Public Star Party Centennial Obs. 9:45p - 12:00a
15	16	17	18	19	20	21
22 Last Quarter Moon  Visible: 46% ↓ Age: 22.54 days	23	24	25	26	27	28
29	30					

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 newsletter, unless otherwise noted, are in the public domain and are courtesy of NASA, Wikimedia, or from MVAS File Photos. Full  
 Moon names follow the traditional Algonquin First Nation history.

**Be Careful – Be Safe – Get Out There – Explore Your Universe**

## September Celestial Calendar by Dave Mitsky

All times, unless otherwise noted, are UT (subtract six hours and, when appropriate, one calendar day for MDT)

9/1 The equation of time, which yields the difference between mean solar time and apparent solar time, equals 0 at 20:00  
9/2 Mars is in conjunction with the Sun (2.675 astronomical units from Earth, latitude 1.7 degrees) at 11:00; the Moon is 7.1 degrees north-northeast of the first-magnitude star Spica (Alpha Virginis) at 15:00  
9/3 Mercury (magnitude -1.8) is 0.6 degree north-northeast of Mars (magnitude +1.7) at 17:00  
9/4 Mercury is in superior conjunction with the Sun (1.369 AU from Earth, latitude 6.5 degrees) at 1:00  
9/5 The Moon is 7.6 degrees north-northeast of the first-magnitude star Antares (Alpha Scorpii) at 23:00  
9/6 Asteroid 135 Hertha (magnitude +9.6) is at opposition in Aquarius at 6:00; the Moon is 2.3 degrees north-northeast of Jupiter at 8:00; the Lunar X, also known as the Werner or Purbach Cross, an X-shaped clair-obscur illumination effect involving various ridges and crater rims located between the craters La Caille, Blanchinus, and Purbach, is predicted to begin at 15:47  
9/8 The Moon is 0.04 degree north of Saturn, Jupiter is at eastern quadrature (90 degrees from the Sun) at 15:00; the Moon is at the descending node (longitude 286.0 degrees) at 18:00  
9/9 The Moon is 0.1 degree north of Pluto,  
9/10 Neptune (magnitude +7.8, apparent size 2.4") is at opposition at 8:00  
9/13 The Moon is at apogee, subtending 29' 24" from a distance of 406,377 kilometers (252,511 miles), at 1:32; Mercury is (magnitude -0.9) 0.3 degree south-southwest of Venus (magnitude -3.9) at 14:00; the Moon is 3.4 degrees southeast of Neptune at 21:00  
9/17 The Sun enters Virgo, at longitude 174.2 degrees on the ecliptic, at 8:00; the Moon is 4.0 degrees south of Uranus  
9/18 Saturn is stationary in right ascension, with prograde (direct) motion to commence, at 5:00; Saturn is stationary in longitude, with prograde (direct) motion to commence, at 7:00  
9/19 The Moon is 7.6 degrees southeast the bright open cluster M45 (the Pleiades or Subaru) in Taurus at 23:00; Mars and Neptune are at heliocentric opposition (longitudes 167.4 degrees and 347.4 degrees) at 23:00  
9/20 The Moon is 2.6 degrees north of the first-magnitude star Aldebaran (Alpha Tauri) at 16:00  
9/22 The Moon is 2.0 degrees south of the bright open cluster M35 in Gemini at 9:00; the Curtiss Cross, an X-shaped illumination effect located between the craters Parry and Gambart, is predicted to be visible at 16:28; Mercury is at the descending node through the ecliptic plane at 21:00  
9/23 The Moon is at the ascending node (longitude 104.4 degrees) at 7:00; the Sun is at a longitude of 180 degrees at 7:50; the autumnal equinox occurs in the northern hemisphere at 7:50; the Moon is 9.5 degrees south of the first-magnitude star Castor (Alpha Geminorum) at 19:00  
9/24 The Moon is 5.9 degrees south of the first-magnitude star Pollux (Beta Geminorum) at 0:00; the Moon is 0.4 degree north of the bright open cluster M44 (the Beehive Cluster or Praesepe) in Cancer at 22:00  
9/25 Asteroid 4 Vesta (magnitude +7.3) is stationary in Taurus at 5:00  
9/26 The Moon is 3.2 degrees north-northeast of the first-magnitude star Regulus (Alpha Leonis) at 11:00  
9/27 Saturn is at its southernmost declination (-22.5 degrees) at 21:00  
9/28 The Moon is at perigee, subtending 33' 24" from a distance of 357,803 kilometers (222,328 miles), at 2:24; asteroid 21 Lutetia (magnitude +9.0) is at opposition in Capricornus at 4:00; New Moon (lunation 1197) occurs at 18:26  
9/29 Mercury (magnitude -0.2) is 1.3 degree north-northeast of Spica at 9:00; the Moon is 4.0 degrees north-northeast of Venus at 16:00  
9/30 The Moon is 7.0° north-northeast of Spica at 1:00; the Moon is 5.8 degrees north-northeast of Mercury at 3:00

Nicolas Louis de Lacaille and Johann Gottfried Galle were born this month.

Jean-Dominique Maraldi discovered the globular cluster M15 on September 7, 1746. On September 11, 1746, Jean-Dominique Maraldi discovered the globular cluster M2. Nicolas-Louis de Lacaille discovered NGC 104 (47 Tucanae), the second largest and brightest globular cluster, on September 14th, 1751. William Herschel discovered the barred spiral galaxy NGC 7753 on September 12, 1784. William Herschel discovered the Saturnian satellite Mimas on September 17, 1789. Comet C/1793 S2 (Messier) was discovered by Charles Messier on September 27th, 1793. Karl Harding discovered asteroid 3 Juno on September 1, 1804. Neptune was discovered by Johann Gottfried Galle on September 23, 1846, using Urbain Le Verrier's calculations of its position. On September 19, 1848, William Bond discovered Saturn's fourteenth-magnitude satellite Hyperion, the first irregular moon to be discovered. On September 13, 1850, John Russell Hind discovered the asteroid 12 Victoria. E. E. Barnard discovered Jupiter's fifth satellite, fourteenth-magnitude Amalthea, using the 36-inch refractor at the Lick Observatory, on September 9, 1892.

Online data generators for various astronomical events are available at <https://astronomynow.com/almanac/> and <https://calsky.com/>

## The Sun, the Moon, & the Planets



The Moon is 1.8 days old, subtends 33.3 arc minutes, is illuminated 3.8%, and is located in Virgo on September 1st at 0:00 UT. The Moon is at its greatest northern declination (+22.7 degrees) on September 23rd and its greatest southern declination (-22.5 degrees) on September 8th. Longitudinal libration is at a maximum of +7.9 degrees on September 5th and a minimum of -7.1 degrees on September 22nd. Latitudinal libration is at a maximum of +6.6 degrees on September 16th and a minimum of -6.6 degrees on September 2nd and -6.5 degrees on September 29th. The First Quarter Moon forms a noteworthy triangle with Antares and Jupiter on September 5th. The waxing gibbous Moon lies between Jupiter and Saturn on the following two nights. The waning gibbous Moon is located in the bright open cluster Melotte 25 (the Hyades) on the morning of September 20th. New Moon occurs on September 28th. Large tides will occur for several days thereafter. The Moon is at apogee (63.71 Earth-radii distant) on September 13th and at perigee (56.10 Earth-radii distant) on September 28th. The Moon occults Saturn on September 8th and Pluto on September 9th from certain parts of the world. The Moon occults the variable triple-star Propus (Eta Geminorum) for observers in the southwestern United States and Central America on the morning of September 22nd. For more on this event, see the article on page 50 of the September 2019 issue of Sky & Telescope. Browse <http://www.lunar-occ...bstar/bstar.htm> for information on this and other upcoming lunar occultations of bright stars. Visit <http://saberdoesthes...s-the-stars/for> tips on spotting extreme crescent Moons and <http://www.curtrenz.com/moon06.html> for Full Moon data. Click on <https://www.calendar.../2019/september> for a lunar phase calendar for this month. Times and dates for the lunar crater light rays predicted to occur in September are available at <http://www.lunar-occ...o/rays/rays.htm>

The zodiacal light, or the false dawn, is visible about two hours before sunrise from a dark site for two weeks beginning on September 26th. It can be seen in Leo, Cancer, Gemini, and Taurus. Articles on the zodiacal light appear at <http://www.atoptics...ighsky/zod1.htm> and <http://oneminuteastr...zodiacal-light/>

The Sun is located in Leo on September 1st. It enters Virgo on September 17th. The Sun crosses the celestial equator from north to south at 7:50 UT on September 23rd, the date of the autumnal equinox.

Brightness, apparent size, illumination, distance from the Earth in astronomical units, and location data for the planets and Pluto on September 1st: Mercury (magnitude -1.8, 5.0", 99% illuminated, 1.35 a.u., Leo), Venus (magnitude -3.9, 9.7", 100% illuminated, 1.72 a.u., Leo), Mars (magnitude +1.7, 3.5", 100% illuminated, 2.68 a.u., Leo), Jupiter (magnitude -2.2, 39.0", 99% illuminated, 5.06 a.u., Ophiuchus), Saturn (magnitude +0.3, 17.6", 100% illuminated, 9.42 a.u., Sagittarius), Uranus (magnitude +5.7, 3.7", 100% illuminated, 19.09 a.u. on September 16th, Aries), Neptune (magnitude +7.8, 2.4", 100% illuminated, 28.93 a.u. on September 16th, Aquarius), and Pluto (magnitude +14.3, 0.1", 100% illuminated, 33.40 a.u. on September 16th, Sagittarius).

**Mercury** is in superior conjunction on September 4th. It reappears in the evening sky as the month ends.

During September, **Venus** changes very little in apparent size and magnitude. After being lost in the glare of the Sun when it reached superior conjunction last month, Venus can be seen once again in the evening sky as September draws to a close.

**Mars** is in conjunction with the Sun on September 2nd, a week after reaching aphelion, and is about as far from the Earth as the Red Planet can get. Mars won't be visible again until the third week of October.

**Jupiter** sets shortly after 10:00 p.m. DST by the end of September. It decreases in brightness to magnitude -2.0 and shrinks in angular diameter by 3.1 arc seconds this month. The First Quarter Moon passes two degrees north of Jupiter on September 6th. Jupiter is at eastern quadrature on September 8th. Transits by Io, starting at 8:04 p.m. EDT (0:04 UT September 5th), and its shadow, starting at 9:21 p.m. EDT (1:21 UT September 5th), take place on September 4th. A transit by Ganymede's shadow occurs on September 5th, beginning at 11:22 p.m. EDT (3:22 UT September 6th). Ganymede passes 30 arc minutes due north of Callisto on the evening of September 19th. Information on Great Red Spot transit times and Galilean satellite events is available on pages 50 and 51 of the September 2019 issue of Sky & Telescope and online at <http://www.skyandtel...watching-tools/> and <https://www.projectp....com/jevent.htm>

**Saturn's** disk is 17 arc seconds in diameter at mid-month. At that time, its rings span 39 arc seconds and are tilted 25 degrees with respect to the Earth. Saturn fades from magnitude +0.3 to magnitude +0.5 this month. The Ringed Planet lies very close to the waxing gibbous Moon on September 8th, with an occultation occurring in some parts of the world. Saturn reaches its second stationary point on September 18th and then begins prograde or eastward motion. It is at its southernmost declination of -22.5 degrees on September 27th. Eighth-magnitude Titan, Saturn's largest and brightest satellite, is due south of the planet on September 7th and due north of it on September 16th. Twelfth-magnitude



Enceladus is located five arc seconds southwest of tenth-magnitude Tethys on September 4th. Saturn's peculiar satellite Iapetus shines at eleventh magnitude on September 11th, when it passes 1.4 arc minutes to the south of the planet. Iapetus brightens to tenth magnitude and is positioned 8.5 arc minutes from Saturn on September 30th. For further information on Saturn's satellites, browse <http://www.skyandtel...atching-tools/>

**Uranus** is located in southwestern Aries, eleven degrees south of the second-magnitude star Hamal (Alpha Arietis). The planet lies 2.5 degrees south of the sixth-magnitude star 19 Arietis throughout the month. The waning gibbous Moon passes four degrees south of Uranus on September 17th. Visit [http://www.bluewater...anus\\_2019\\_1.pdf](http://www.bluewater...anus_2019_1.pdf) and <http://www.nakedeyep...com/uranus.htm> for finder charts.

**Neptune** is located seven arc minutes east of the fourth-magnitude star Phi Aquarii on the first day of September. By September 5th, the ice giant planet lies just 42 arc seconds east of that star. As the day begins on September 6th, Neptune is a mere 13 arc seconds from Phi. Neptune subtends just 2.4 arc seconds, shines at magnitude +7.8, and lies at a distance of 4.0 light hours when it reaches opposition on September 10th. At that time, it is six arc minutes west of Phi Aquarii. As the month ends, Neptune is positioned 40 arc minutes from the star. The waxing gibbous Moon passes four degrees south of Neptune on September 13th. Browse [http://www.bluewater...tune\\_2019\\_1.pdf](http://www.bluewater...tune_2019_1.pdf) and <http://www.nakedeyep...com/neptune.htm> for finder charts.

An article on Uranus and Neptune with finder charts appears on pages 48 and 49 of the September 2019 issue of Sky & Telescope. Finder charts for Uranus and Neptune are also available online at [https://s22380.pcdn....020\\_updated.pdf](https://s22380.pcdn....020_updated.pdf)

**Pluto** is located near the Teaspoon asterism in northeastern Sagittarius at a declination of nearly -22.5 degrees. Finder charts can be found at <http://www.bluewater...9/Pluto2019.jpg> and on page 48 and 49 of the July 2019 issue of Sky & Telescope and on page 243 of the RASC Observer's Handbook 2019.

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

Various events taking place within our solar system are discussed at <http://www.bluewater...ed-4/index.html>

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### Asteroids



Asteroid 1 Ceres heads southeastward between Ophiuchus and Scorpius during September. The dwarf planet shines at ninth magnitude as it passes 12 arc minutes north of the fifth-magnitude star Rho Ophiuchi on September 11th and 2.9 degrees north of the first-magnitude star Antares on September 15th. Asteroid 135 Hertha (magnitude +9.6) is at opposition in Aquarius on September 6th. Asteroid 21 Lutetia (magnitude +9.0) is at opposition in Capricornus on September 28th. Data on asteroid occultations taking place this month is available at [http://www.asteroido.../2019\\_09\\_si.htm](http://www.asteroido.../2019_09_si.htm) and <http://www.poyntsour.../New/Global.htm>

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### Carbon Star



Notable carbon star for September: LW Cygni Right Ascension: 21<sup>h</sup> 55<sup>m</sup> 57.03<sup>s</sup> | Declination: +48° 20' 52.6"

### Comets



During September, Comet C/2018 W2 (Africano) travels through Perseus, Andromeda, and Pegasus, and enters Pisces. It is at perihelion on September 5th and reaches a maximum brightness of approximately ninth magnitude on September 25th. On September 28th, the rapidly moving comet passes very close to the eleventh-magnitude galaxy NGC 7743 in southern Pegasus. Browse <http://cometchasing.skyhound.com/> and <http://www.aerith.ne...t/future-n.html> for further information on comets visible this month. Other sources of information include <https://theskylive.com/comets> and <http://www.shopplaza...mets/comets.htm> and [http://britastro.org...arts\\_comet.html](http://britastro.org...arts_comet.html)

## Meteors



The minor meteor shower known as the Aurigids, which has a maximum hourly rate of just six per hour, peaks on the morning of September 1st. The peak of the minor meteor shower known as the Epsilon Perseids, with a maximum hourly rate of just five per hour, takes place on the evening of September 9th. The radiant is located near the second-magnitude star Algol (Beta Persei) at 03h15m, +40 degrees.

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## Orbiting Earth



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

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## The Deep Sky



The famous eclipsing variable star Algol (Beta Persei) is at a minimum, decreasing in brightness from magnitude +2.1 to magnitude +3.4, on September 1st, 4th, 7th, 10th, 12th, 15th, 18th, 21st, 24th, 27th, and 30th. Consult page 49 of the September 2019 issue of Sky & Telescope for the minima times. On the morning of September 7th, Algol shines at minimum brightness (magnitude +3.4) for approximately two hours centered at 2:05 a.m. EDT (6:05 UT). It does the same at 10:54 p.m. EDT (2:54 UT September 10th) on the night of September 9th and 12:34 a.m. EDT (4:34 UT) on the morning of September 30th. For more on Algol, see <http://stars.astro.i.../sow/Algol.html> and <http://www.solstatio...rs2/algol3.htm>

Eighty binary and multiple stars for September: 12 Aquarii, Struve 2809, Struve 2838 (Aquarius); Alpha Capricorni, Sigma Capricorni, Nu Capricorni, Beta Capricorni, Pi Capricorni, Rho Capricorni, Omicron Capricorni, h2973, h2975, Struve 2699, h2995, 24 Capricorni, Xi Capricorni, Epsilon Capricorni, 41 Capricorni, h3065 (Capricornus); Kappa Cephei, Struve 2751, Beta Cephei, Struve 2816, Struve 2819, Struve 2836, Otto Struve 451, Struve 2840, Struve 2873 (Cepheus); Otto Struve 394, 26 Cygni, h1470, h1471, Omicron Cygni, Struve 2657, 29 Cygni, 49 Cygni, 52 Cygni, 59 Cygni, 60 Cygni, 61 Cygni, Struve 2762 (Cygnus); Struve 2665, Struve 2673, Struve 2679, Kappa Delphini, Struve 2715, Struve 2718, Struve 2721, Struve 2722, Struve 2725 (in the same field as Gamma Delphini), Gamma Delphini, 13 Delphini, Struve 2730, 16 Delphini, Struve 2735, Struve 2736, Struve 2738 (Delphinus); 65 Draconis, Struve 2640 (Draco); Epsilon Equulei, Lambda Equulei, Struve 2765, Struve 2786, Struve 2793 (Equuleus); 1 Pegasi, Struve 2797, h1647, Struve 2804, Struve 3112, 3 Pegasi, 4 Pegasi, Kappa Pegasi, h947, Struve 2841, Struve 2848 (Pegasus); h1462, Struve 2653, Burnham 441, Struve 2655, Struve 2769 (Vulpecula)

Fifty deep-sky objects for September: M2, M72, M73, NGC 7009 (Aquarius); M30, NGC 6903, NGC 6907 (Capricornus); B150, B169, B170, IC 1396, NGC 6939, NGC 6946, NGC 6951, NGC 7023, NGC 7160, NGC 7142 (Cepheus); B343, B361, Ba6, Be87, Cr 421, Do9, IC 4996, M29, M39, NGC 6866, NGC 6871, NGC 6888, NGC 6894, NGC 6910, NGC 6960, NGC 6992, NGC 6994, NGC 6995, NGC 7000, NGC 7008, NGC 7026, NGC 7027, NGC 7039, NGC 7048, NGC 7063, NGC 7086 (Cygnus); NGC 6891, NGC 6905, NGC 6934, NGC 7006 (Delphinus); NGC 7015 (Equuleus); M15 (Pegasus); NGC 6940 (Vulpecula)

Top ten binocular deep-sky objects for September: IC 1396, LDN 906, M2, M15, M29, M30, M39, NGC 6939, NGC 6871, NGC 7000

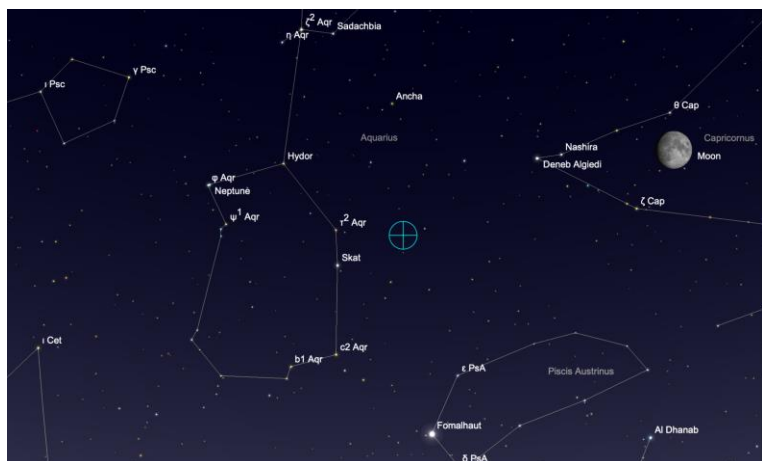
Top ten deep-sky objects for September: IC 1396, M2, M15, M30, NGC 6888, NGC 6946, NGC 6960, NGC 6992, NGC 7000, NGC 7009

Challenge deep-sky object for September: Abell 78 (Cygnus)

The objects listed above are located between 20:00 and 22:00 hours of right ascension.



Jupiter and the Moon form a triangle with the star Antares to the south about an hour after sunset on Sept. 5, 2019 in the southwestern sky. Saturn lies to the east of the “Teapot” of the constellation Sagittarius.



**10 Sept.** The planet Neptune reaches opposition, rising in the east as the Sun sets in the west. The planet is located in the constellation Aquarius, and today it's less than a degree to the west of the red-orange star Phi ( $\phi$ ) Aquarii. At magnitude 7.8, this most distant planet is still relatively dim, but it's easily visible in a telescope or binoculars. Detecting the 2"-wide disk of the planet is a little trickier: you will need a telescope at a magnification of 50x or more. Try a range of magnifications to see the disk of the planet change apparent size. This is still the best way to ensure you are seeing the planet and not the background stars, which do not change apparent size with magnification. The planet is best observed this month near or after midnight when it's highest in the sky. Watch from night to night, before and after opposition, as the planet slowly changes its position relative to  $\phi$  Aqr. The pale grey-blue of the planet contrasts nicely with the red-orange color of the star.

## Club Star Party Reports

### Stanley star party report from Tim Frazier

The star party in Stanley on Friday was a pretty good one considering there was a threat of clouds and only about 12 members of the BAS were able to attend. Six scopes were set up at the Stanley Park which was a good place except for two outdoor lights that spoiled what would have been a great location. I trailered my 18" and began by viewing Jupiter which was surprisingly sharp considering how low it was and the slowly gathering clouds. The red spot was clearly visible and the visitors could easily see it. Over the course of the evening, about 35 people came by to look through my scope. Idaho Public TV was there and interviewed members of the dark sky board, in particular Dr. Steve Pauly, aka Dr. Dark. He is responsible for a 20 year crusade to get dark sky lighting ordinances enacted in the Wood River Valley. ITV also filmed my scope for one of their programs. Unfortunately, they were not able to hook their cameras to my scope due to some compatibility issues with the SHARE equipment.

I viewed M11, M22, M27 and M54 before the clouds completely covered the sky. Also, there were enough people circulating that moving from one object to another was a slow process. There were folks from Canada who couldn't get over seeing the Milky Way and three exchange students from Russia who were thrilled to see anything through the scopes. Overall, even given the early end of the evening, it was a success from the stand point of getting some publicity and it gave me a chance to work out how to better transport my big scope. Finally, even with an unstable atmosphere and thin clouds, the SQM gave a reading of 21.4.

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### Hagerman star party report from Robert Mayer

Folks,

Gary, Tim, and I went out to the Oregon Trail Outlook last night. Sky conditions were quite good early on, only starting to deteriorate around midnight. We knew something was up when Jupiter's red spot was visible and I picked out three Saturnian moons before 9:15.

Gary will likely have photos later, and Tim will likely present his log as well. He was knocking out small planetary nebulae, and pulled off least one with a magnitude of 15, then started knocking out small objects in Hercules.

Anyway,

Doubles: Alcor/Mizar, Cor Caroli, Beta Lyrae

M4, 6, 7, 8, 13, 16, 17, 19, 20, 21, 22, 28, 31, 32, 33 (binoculars), 45 (naked eye), 51, 54, 57, 69, 70, 80, 81, 82, 101, 102 (NGC 5866), 109, 110 (I'm getting selfish and am trying again to land the Messier list)

NGC 6207 (galaxy near M13), NGC 6210 (couldn't quite get the turtle to appear, but it had a blue tint to it.)

We'll be talking about going up to Craters either Sept. 26 or 27. We look forward to your input at the next meeting.

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### Hagerman star party report from Tim Frazier

Hi all. To follow up on Rob's notes, here are mine:

Observing at Hagerman Overlook, August 30, 2019

Rob, Gary and I met at the Hagerman Overlook and enjoyed quite a wonderful night of observing. To begin, the sky was dark and the seeing fairly good. My SQM meter read between 21.21 and 21.34 throughout the night.

I concentrated on planetary nebulae and viewed several I had not seen before. In Ophiuchus I started with NGC 6572, an 8.1 magnitude, 11" diameter, bright blue-green ball. This was followed by 6751, 6818, the Little Gem, IC 1295 and the globular cluster 6712. The faintest was 1295 at a magnitude of 12.5 and needed a UHC filter to bring out a hint of structure.



Next, I moved to Hercules and began with M13 then on to NGC 6058, at magnitude 12.9, which showed a mottled appearance at 154x through a UHC filter. NGC 6210 was sphere 16" in diameter that was easy to see at a magnitude of 8.8. I moved on to the galaxies 6158, 6166 and 6207 which had a bright center. The dimmest was 6158 at 13.7.

I tried to see M57's central star with no luck although I identified two nearby field stars at magnitudes 14.7 and 15.3. Although the central star is listed at 15.2, I could not detect it.

Throughout the night, we checked Jupiter and Saturn and were able to see the Red Spot and good detail on Saturn's rings. I also viewed a very faint nebula listed at a magnitude of 15, which was confirmed by Rob, but I was so excited, I forgot to write it down.

Overall, we agreed that this location is generally underappreciated and we should try to visit it more often.

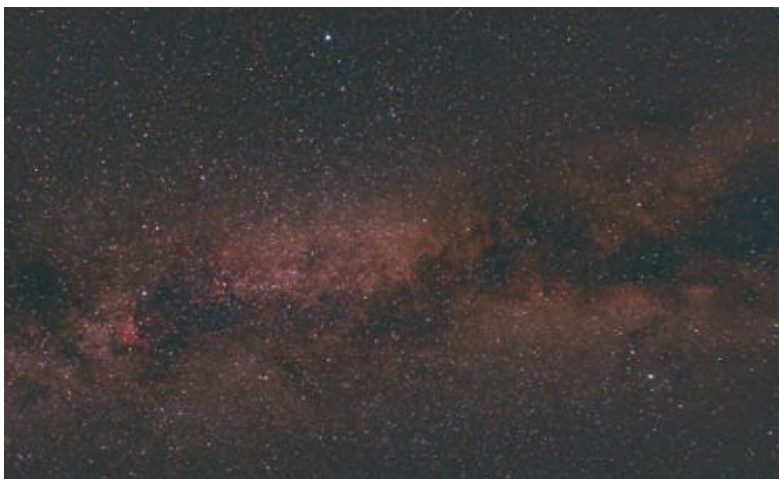
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### **Hagerman star party pictures from Gary Leavitt from what he has submitted so far.**

Hi All; Attached are the first two images from the Hagerman Star Party this past Friday night. As both Rob and Tim have reported, sky conditions were good, the best I have personally witnessed in my several trips there. Conditions did somewhat deteriorate after the first hour and a half, but was still above average. My goal was to focus on three areas: Cygnus-Deneb-Sadr region, which was near zenith, the Aquila Region off somewhat to the southeast and Cepheus, the king, next to his queen, Cassiopeia, for reasons I'll defer to later.

Cygnus was a real challenge because of its altitude in the sky near zenith. Its not easy to get your camera, armed with a red-dot finder and lens pointed directly up on a ball-head that will hopefully stay immobile while your tracking mount flawlessly moves across the sky from east to west. Well, for the most part, it did, then it didn't. You know the story. Anyway, out of 35 light frames, I was able to pull 10 that I could use. Was able to notice some interesting things like the N.American and Pelican nebulae near Deneb, the Coathanger cluster just right of center and several nebulae around the near the Sadr region. Also noticed the huge Great Rift through the entire region. Anyway, thanks for looking. The other pic is of Southern Milky way from the horizon up.

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## Phil Harrington's Cosmic Challenge

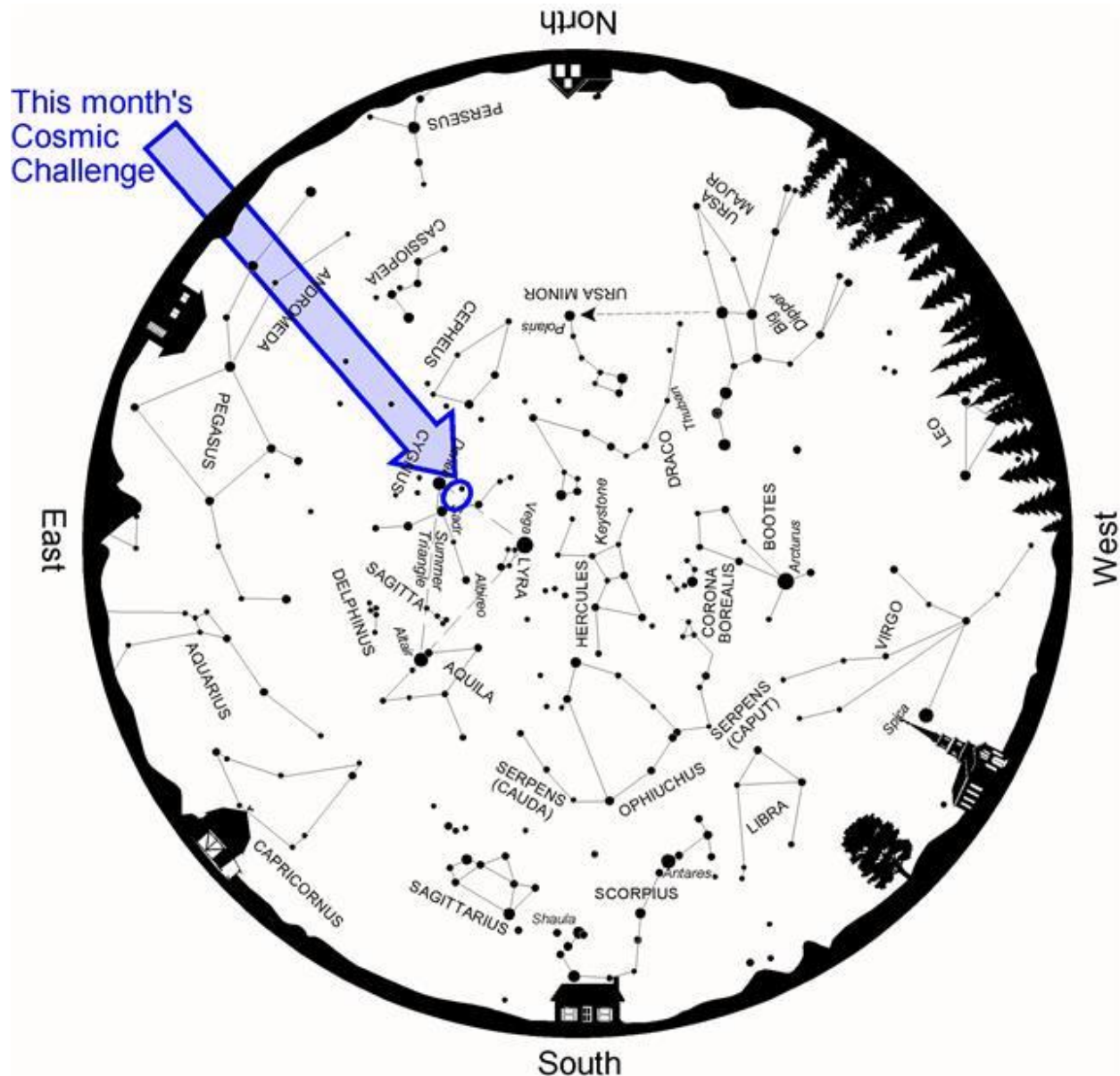
### Cosmic Challenge: Emission Nebula Simeis 57



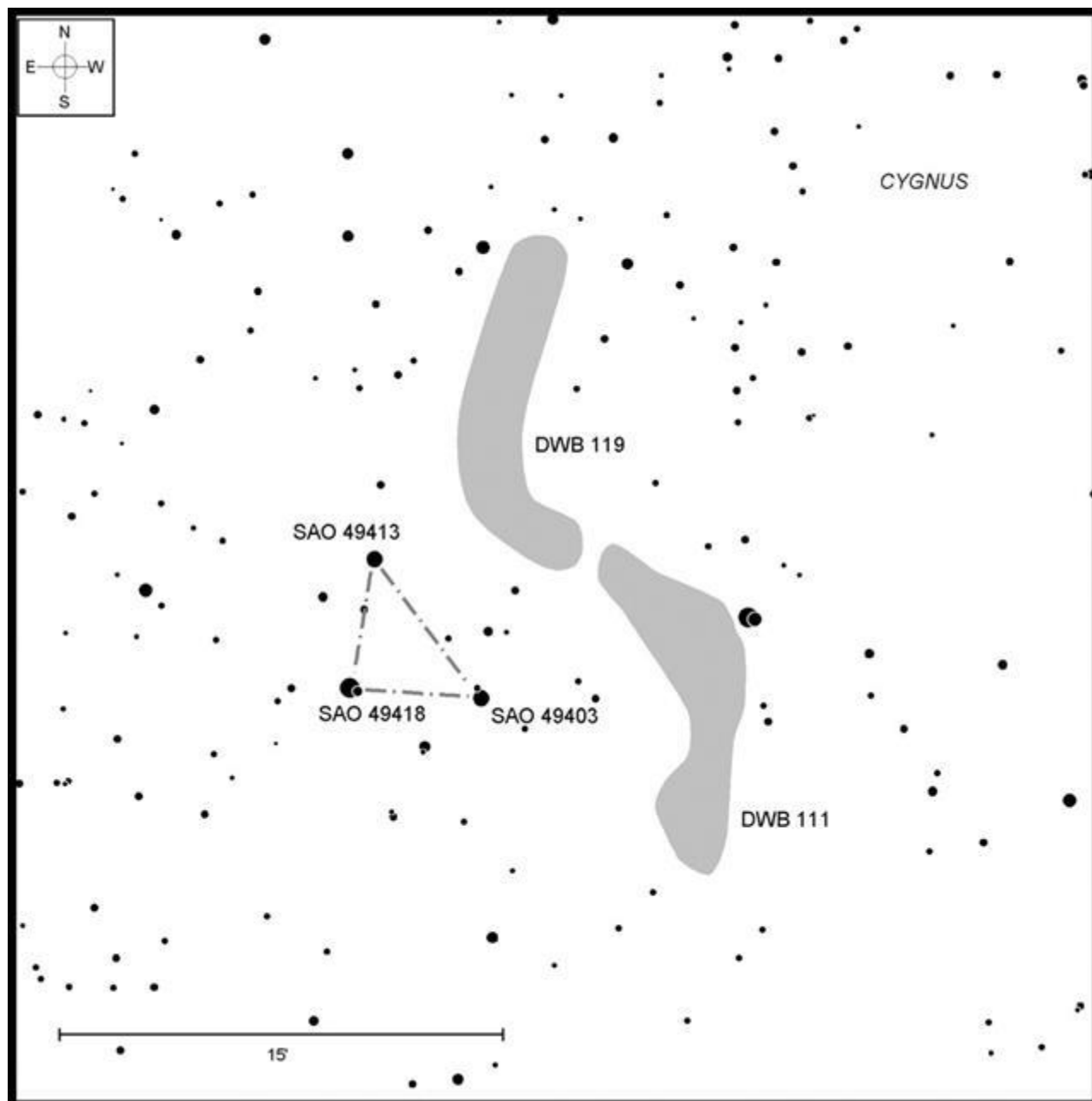
15-inch (38 cm) and larger telescopes

Target	Type	RA	DEC	Constellation	Magnitude	Size
Simeis 57	Emission nebula	20h 16.2m	43° 41.2'	Cygnus	--	23'x4'

Simeis 57 is one of the most intriguing emission nebulae in the late summer sky, yet it is almost unknown to visual observers. Photographers, however, know it as a pair of opposing arcs of reddish light, one extending to the north, the other to the south, that appear to be spinning symmetrically away from a common center. Its unusual appearance has led to its two nicknames: the Propeller Nebula or the Garden Sprinkler Nebula.



Above: Summer star map. Credit: Map adapted from [Star Watch](#) by Phil Harrington.



Above: Finder chart for this month's [Cosmic Challenge](#).  
Click on the chart to open a printable PDF version.

The entire complex was assigned Simeis 57 when it was discovered in the early 1950s by G.A Shajn and V.E. Hase at the Crimean Astrophysical Observatory at Simeis, Russia. Their results were published in the observatory's [Bulletin of the Crimean Astrophysical Observatory](#) (in Russian, *Izvestiya Krymskoi Astrofizicheskoi Observatorii*), although they did not become widely known outside of the Soviet Union at the time, probably due to the Cold War raging at the time.

Later, portions of Simeis 57 were assigned separate designations in various catalogs. The propeller's southern blade is listed as DWB 111, after a [1969 article](#) detailing the Cygnus X region, written by H. R. Dickel, H. Wendker, and J.H. Bieritz that appeared in the journal [Astronomy & Astrophysics](#) (A&A, vol. 1, p. 270 - 280). The same article listed the northern blade as DWB 119. Fainter sections were assigned other DWB numbers, although for our purposes here, we will concentrate on trying to see the propeller itself. That's tough enough. (Sidebar: For a more up-to-date review of the physics behind Simeis 57, read [The peculiar nebula Simeis 57-I. Ionized gas and dust extinction](#), also published in [Astronomy and Astrophysics](#) [A&A vol. 398, p. 1063-1071].)

As with so many emission nebulae (or hydrogen-II regions, if you prefer), the Propeller Nebula is very difficult to see by eye alone. That's because its primary emissions lie in the red portion of the visible spectrum, where our eyes are all but blind under dim light conditions. And they don't come much dimmer than Simeis 57.

The blades of the propeller span about 20', so in order to squeeze both into the same view, select an eyepiece with a real-field coverage of at least half a degree. A modern, ultra-wide design with an 80°-plus apparent field is better than, say, a more conventional Plössl, since their wide apparent fields also produce a higher magnification for the given real field. That's important consideration, since higher magnification will generate better image contrast.

To boost contrast further, experiment with various nebula filters. Not to plant any preconceived prejudices in your mind, but narrowband (UHC-type) and O-III filters seem to offer little positive effect on the Propeller. On the other hand, a Hydrogen-Beta (H $\beta$ ) filter, which rarely seems to help objects beyond the Horsehead Nebula, usually proves to be the top choice here. But again, try each filter in your cadre and see which produces the best results.

The Propeller is 5° southwest of Deneb [Alpha ( $\alpha$ ) Cygni], and just to the west of a right triangle the 7th-magnitude stars SAO 49403, 49413, and 49418. While that triangle is obvious in the 8x50 finderscope attached to my 18-inch, the Propeller itself takes better skies than I can hope for from my suburban observatory. Under naked-eye limiting magnitude 6.5 skies, however, the 18-inch at 94x and with an H $\beta$  filter in place reveals a very soft glow after a concentrated search.



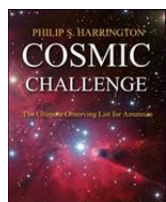
Simeis 57 as seen through the author's 18-inch (46cm) reflector

Of the two blades, the northern component, DWB 119, impresses me as slightly more obvious. It lies just northwest of the triangle. My notes recall the softest of glows, a gentle, concave arc opening toward the west. Two close-set 12th-magnitude stars appear centered along the length of the arc, while an 11th-magnitude star marks its northern tip.

The southern blade (DWB 111) is a tougher catch. Look for a close pair of 9th-magnitude stars just to its west; they make a handy reference marker in much the same way as 52 Cygni does for the NGC 6960 segment of the Veil Nebula. DWB 111 is a mirror image of DWB 119, with its curve opening to the east, more or less toward the right triangle of stars.

Interested in hunting for more Simeis objects? CN'er *ngc4565adam* started [a thread in the Deep Sky forum](#) some years back asking for a source of the catalog. A pair of Steves (Saber and Gottlieb) posted replies. The former Steve (Saber) shared [a link](#) to SIMBAD that gives 231 entries, while the latter (Gottlieb) offered [a second link](#) listing some pertinent Simeis publications. The thread and links are all worth visiting.

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



**About the Author:** Phil Harrington writes the monthly [Binocular Universe](#) column in [Astronomy](#) magazine and is the author of 9 books on astronomy. Visit his web site at [www.philharrington.net](http://www.philharrington.net) to learn more.

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### Spot the Stars of the Summer Triangle

David Prosper

September skies are a showcase for the **Summer Triangle**, its three stars gleaming directly overhead after sunset. The **equinox** ushers in the official change of seasons on September 23. **Jupiter** and **Saturn** maintain their vigil over the southern horizon, but set earlier each evening, while the terrestrial planets remain hidden.

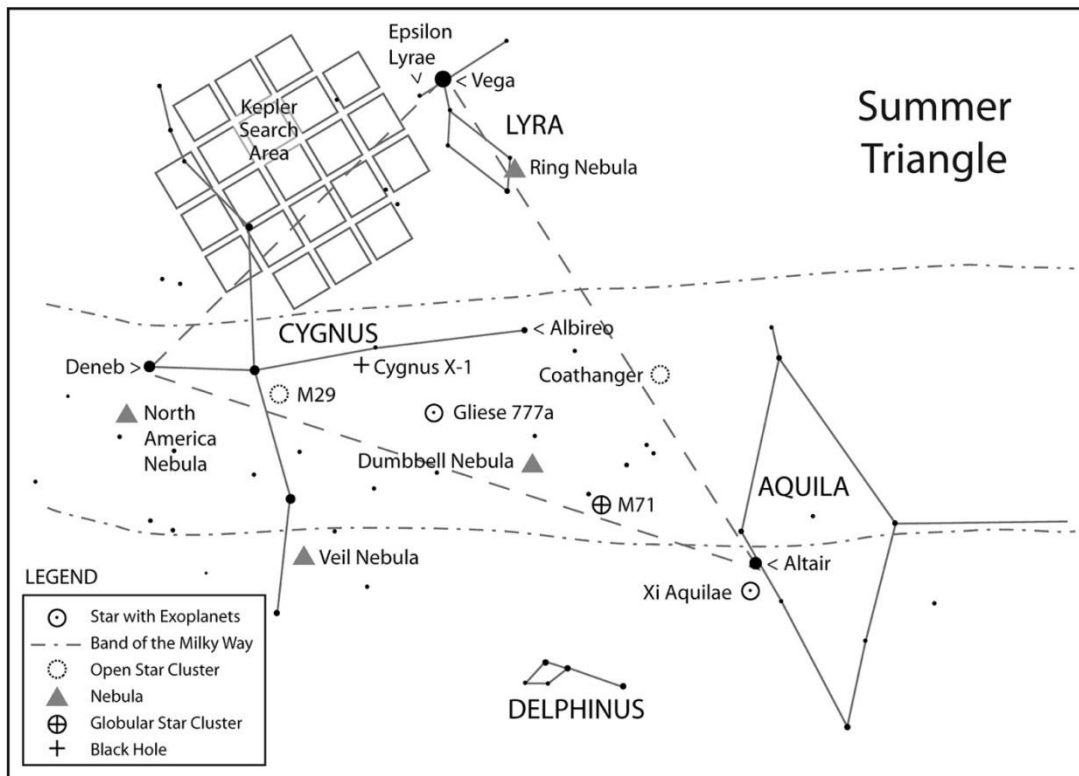
The bright three points of the **Summer Triangle** are among the first stars you can see after sunset: Deneb, Vega, and Altair. The Summer Triangle is called an **asterism**, as it's not an official constellation, but still a striking group of stars. However, the Triangle is the key to spotting multiple constellations! Its three stars are themselves the brightest in their respective constellations: Deneb, in Cygnus the Swan; Vega, in Lyra the Harp; and Altair, in Aquila the Eagle. That alone would be impressive, but the Summer Triangle also contains two small constellations inside its lines, Vulpecula the Fox and Sagitta the Arrow. There is even another small constellation just outside its borders: diminutive Delphinus the Dolphin. The Summer Triangle is huge!

The **equinox** occurs on September 23, officially ushering in autumn for folks in the Northern Hemisphere and bringing with it longer nights and shorter days, a change many stargazers appreciate. Right before sunrise on the 23<sup>rd</sup>, look for Deneb - the Summer Triangle's last visible point - flickering right above the western horizon, almost as if saying goodbye to summer.

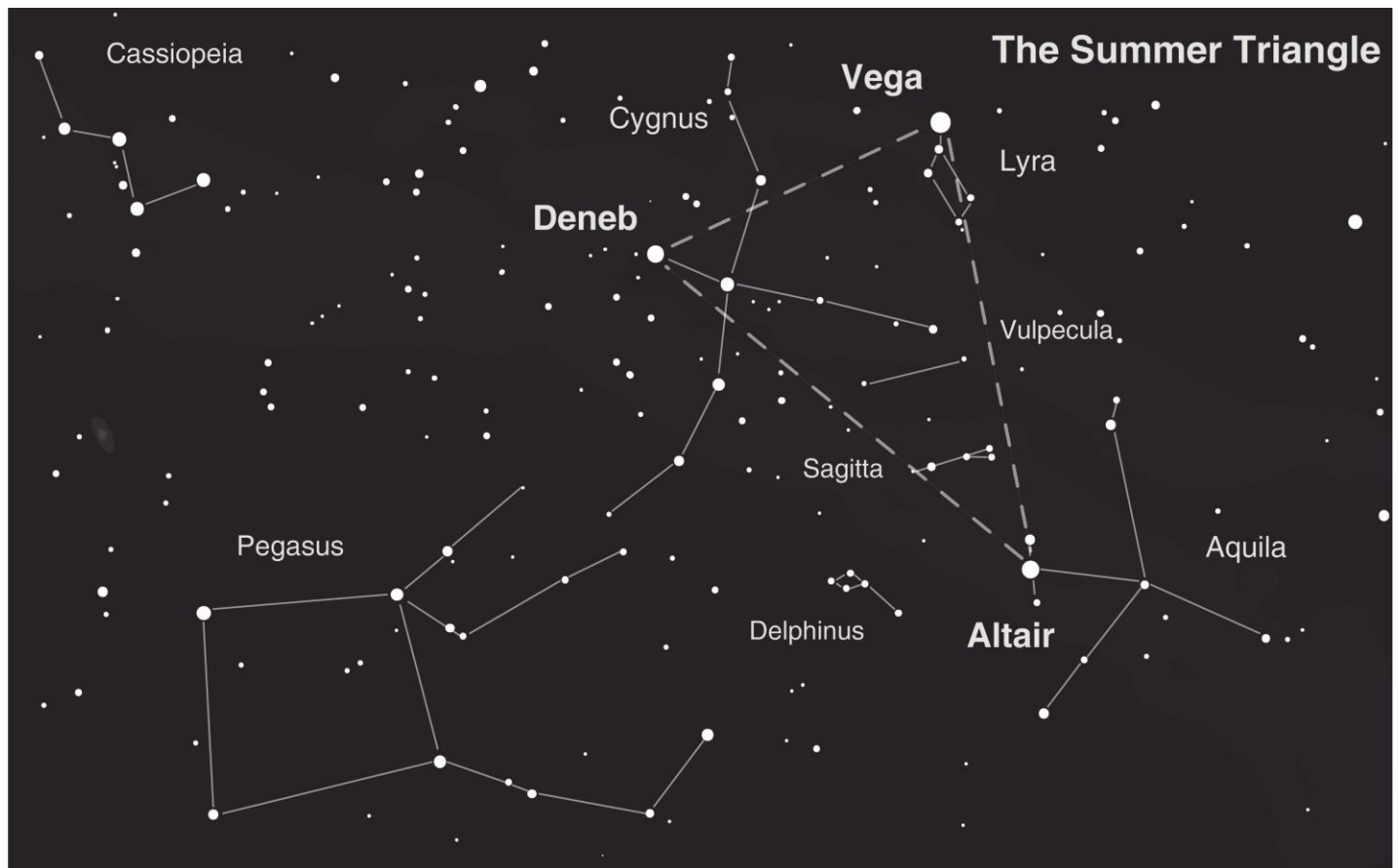
The Summer Triangle region is home to many important astronomical discoveries. Cygnus X-1, the first confirmed black hole, was initially detected here by x-ray equipment on board a sounding rocket launched in 1964. NASA's Kepler Mission, which revolutionized our understanding of exoplanets, discovered thousands of planet candidates within its initial field of view in Cygnus. The Dumbbell Nebula (M27), the first planetary nebula discovered, was spotted by Charles Messier in the diminutive constellation Vulpecula way back in 1764!

Planet watchers can easily find **Jupiter** and **Saturn** shining in the south after sunset, with Jupiter to the right and brighter than Saturn. At the beginning of September, Jupiter sets shortly after midnight, with Saturn following a couple of hours later, around 2:00am. By month's end the gas giant duo are setting noticeably earlier: Jupiter sets right before 10:30pm, with Saturn following just after midnight. Thankfully for planet watchers, earlier fall sunsets help these giant worlds remain in view for a bit longer. The terrestrial planets, Mars, Venus, and Mercury, remain hidden in the Sun's glare for the entire month.

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**Caption:** Once you spot the Summer Triangle, you can explore the cosmic treasures found in this busy region of the Milky Way. Make sure to “Take a Trip Around the Triangle” before it sets this fall! Find the full handout at [bit.ly/TriangleTrip](http://bit.ly/TriangleTrip)



**Caption:** This wider view of the area around the Summer Triangle includes another nearby asterism: the Great Square of Pegasus.

## Observatory and Planetarium



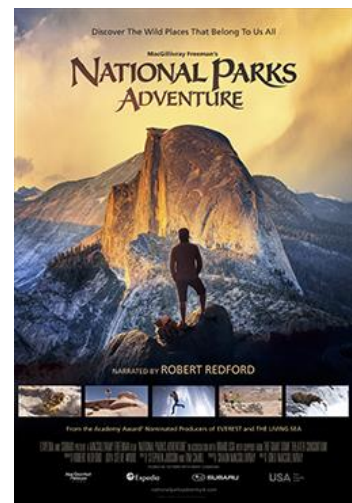
### CSI Centennial Observatory / Faulkner Planetarium Herrett Center

Event	Place	Date	Time	Admission
Summer Solar Session #11	Centennial Observatory	Wednesday, August 7 <sup>th</sup> , 2019	1:30 to 3:30 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, August 10 <sup>th</sup> , 2019	9:15 PM to midnight	FREE
Summer Solar Session #12	Centennial Observatory	Wednesday, August 14 <sup>th</sup> , 2019	1:30 to 3:30 PM	FREE
Summer Solar Session #13	Centennial Observatory	Wednesday, August 21 <sup>st</sup> , 2019	1:30 to 3:30 PM	FREE
KVMT Kids' Fest Solar Viewing	Centennial Observatory	Saturday, August 24 <sup>th</sup> , 2019	10:00 AM to 2:00 PM	FREE
Summer Solar Session #14	Centennial Observatory	Wednesday, August 28 <sup>th</sup> , 2019	1:30 to 3:30 PM	FREE

### College of Southern Idaho Campus Twin Falls, ID

#### Faulkner Planetarium / Show Times

<http://herrett.csi.edu/astronomy/planetarium/showtimes.asp>



[Now Showing](#)

3 of the shows showing at the Faulkner Planetarium. Visit the link above for show times.

## About the Magic Valley Astronomical Society

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](mailto: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.