

Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

www.mvastro.org

Membership Meeting

Saturday, February 9th 2019
7:00pm at the
Herrett Center for Arts & Science
College of Southern Idaho.
Public Star Party follows at the
Centennial Observatory

Club Officers

Robert Mayer, President
mayerbrt@gmail.com

Gary Leavitt, Vice President
leavittg@cableone.net

Dr. Jay Hartwell, Secretary

Jim Tubbs, Treasurer / ALCOR
jtubbs015@msn.com
208-404-2999

David Olsen, Newsletter Editor
editor@mvastro.org

Rick Widmer, Webmaster
rick@developersdesk.com

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

February 2019

Colleagues,

This last month, Chris Anderson over at the Herrett Center has had some good fortune in his quest to observe asteroid occultations. After a long drought, the skies favored Anderson on consecutive nights. On Jan. 24, just a day after he had observed the occultation by (84) Klio, Anderson watched a 12.9-magnitude star occulted by (638) Moira.

Neither asteroid is large. As Anderson reports, Klio comes in at a diameter of just under 80 km (50 mi), while Moira is a little smaller at 60 km. Moira needs less than 10 hours to complete a rotation, while Klio takes about an earth day. Both are slightly elongated.

When asked, Anderson said he was the only one signed up to observe either one. But the data of his observations are still important, and they remind us that we amateurs still have a connection to the major research going on in astronomy. With such, we are not only able to confirm the numbers above, but rework other figures and adjust orbital data.

About a week after Anderson's successes, news came out of another type of occultation success. Researchers in Japan spent 60 hours looking for another object to occult one of 200 stars, and it appears they have had success – this time it was indeed something different. While Klio and Moira were main belt asteroids, somewhere about 2 to 3 AUs away, the little chunk Japanese researchers found was somewhere between 30 and 50 AUs away. Even the difference in size was drastic. The unnamed chunk was about 1.3 km in diameter.

If that 30-50 AU figure sounds familiar, it should. That's the Edgeworth-Kuiper Belt, the edge of the solar system beyond Neptune. Out there, the theories go, are possibly leftover pieces of the early solar system. Yes, there are other objects out past Neptune we've observed via occultation – Anderson and others have used occultation to observe Pluto's atmosphere. However, the size of this most recent discovery is apparently what's crucial. The smaller chunks are seen as the missing link in planetary evolution. Occultation studies are bringing us to a better understanding of the system we live in.

And to think they did this with two 28-cm telescopes. Don't ever think your telescope is too small.

We'll have even more science coming our way at our monthly meeting, Friday, Feb. 9, at 7 p.m. Thanks to long-time Twin Falls educator and SOFIA participant Jo Dodds, we'll be hearing from Dr. Ryan M. Lau, whose work includes research involving Spitzer and SOFIA, via the internet. According to his website, Lau's research focuses on "infrared transients, massive evolved stars, dust production/destruction, star formation, and high mass X-ray binaries." We look forward to hearing from him and thank Dr. Dodds for inviting him to talk to us. Until then, may your skies be clear.

Sincerely,

Rob Mayer

Calendar

February 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 Groundhog Day 
3	4 New Moon Lunation 1189 1% Visible ↓ 	5	6	7	8	9 MVAS Meeting at 7:00pm at the Herrett Center Faulkner Planetarium Public Star Party Centennial Obs. 6:30p - 12:00a
10	11	12 Lincoln's Birthday First Quarter Moon Telescope Tuesday Centennial Observatory	13	14 Valentine's Day 	15 National Flag of Canada Day 	16
17	18 President's Day 	19 Full Moon 100% Visible Age: 14.59 Days 	20	21	22 Washington's Birthday 	23
24	25	26 Last Quarter Visible 51% ↓ Telescope Tuesday Centennial Observatory	27	28		

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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

Celestial Calendar by Dave Mitsky

- 2/1 Mercury is at its southernmost latitude from the ecliptic plane (-7.0 degrees) at 15:00
- 2/2 The Moon is 0.6 degree north of Saturn; the Moon is 0.6 degree north of Pluto, with an occultation occurring in western and central North America (with the exception of Alaska), the Aleutian Islands, Hawaii, and northern Micronesia, at 20:00
- 2/3 The astronomical cross-quarter day (i.e., a day half way between a solstice and an equinox) known as Imbolc, Candlemas, or Groundhog Day occurs astronomically at 3:01; the Moon is at the descending node (longitude 296.8 degrees) at 7:00
- 2/4 New Moon (lunation 1189) occurs at 21:04
- 2/5 The Moon is 0.2 degree southeast of Mercury at 8:00; the Moon is at apogee, subtending 29' 23" from a distance of 406,555 kilometers (252,622 miles), at 9:29
- 2/6 Asteroid 532 Herculina (magnitude +8.9) is at opposition at 3:00; the Moon is 1.1 degrees north of asteroid 4 Vesta.
- 2/7 The Moon is 3.0 degrees south-southeast of Neptune at 9:00
- 2/10 The Moon, Mars, and Uranus lie within a circle with a diameter of 5.7 degrees at 20:00; the Moon is 5.7 degrees south-southeast of Mars at 22:00
- 2/11 The Moon is 4.7 degrees south-southeast of Uranus at 1:00; the equation of time is at a minimum for the year (-14.24 minutes) at 16:00
- 2/12 The Lunar X (the Purbach or Werner Cross), an X-shaped illumination effect involving various rims and ridges between the craters La Caille, Blanchinus, and Purbach, is predicted to be fully formed at 2:13; First Quarter Moon occurs at 22:26
- 2/13 Mars (magnitude +1.0) is 1.0 degree north-northwest of Uranus (magnitude +5.8) at 6:00; the Moon is 8.4 degrees south-southeast of the bright open cluster M45 (the Pleiades or Subaru) in Taurus at 11:00
- 2/14 The Moon is 1.7 degrees north of the first-magnitude star Aldebaran (Alpha Tauri) at 4:00
- 2/16 The Sun enters Aquarius (ecliptic longitude 327.9 degrees) at 21:00
- 2/17 The Moon is 7.0 degrees south of the first-magnitude star Pollux (Beta Geminorum) at 6:00; the Moon is at the ascending node (longitude 116.5 degrees) at 10:00
- 2/18 Venus (magnitude -4.1) is 1.1 degrees north of Saturn (magnitude +0.7) at 13:00; the Sun is at a longitude of 330 degrees at 23:00
- 2/19 Mercury (magnitude -1.0) is 0.7 degree north-northwest of Neptune (magnitude +8.0) at 6:00; the Moon is at perigee, subtending 33' 29" from a distance of 356,761 kilometers (221,681 miles), at 9:03; the Moon is 2.4 degrees north-northeast of the first-magnitude star Regulus (Alpha Leonis) at 15:00; Full Moon (known as the Hunger, Snow, or Storm Moon) occurs at 15:54
- 2/20 Mercury is at the ascending node through the ecliptic plane at 16:00
- 2/23 Venus, Saturn, and Pluto lie within a circle 5.1 degrees in diameter at 0:00; Venus (magnitude -4.1) is 1.4 degrees north of Pluto (magnitudes +14.3) at 6:00; the Moon is 7.2 degrees north-northeast of Spica at 6:00; Mars and Jupiter are at heliocentric opposition (longitudes 71.0 degrees and 251.0 degrees) at 11:00
- 2/25 Mercury is at perihelion (0.3075 astronomical units from the sun) at 8:00
- 2/26 Last Quarter Moon occurs at 11:28; the Moon is 8.3 degrees north-northeast of the first-magnitude star Antares (Alpha Scorpii) at 17:00
- 2/27 Mercury is at greatest eastern elongation (18.0 degrees) at 1:00; the Moon is 2.3 degrees north-northeast of Jupiter at 16:00
- 2/28 The Curtiss Cross, an X-shaped clair-obscure illumination effect located between the craters Parry and Gambart, is predicted to be visible at 6:06

Nicolas Copernicus (1473-1543), Galileo Galilei (1564-1642), Jacques Cassini (1677-1756), William Huggins (1824-1910), John Dreyer (1852-1926), Bernard Lyot (1897-1952), and Clyde Tombaugh (1906-1997) were born this month.

Nicolas Louis de Lacaille discovered the open cluster NGC 3228 in Vela on February 11, 1752. Nicolas Louis de Lacaille discovered the face-on barred spiral galaxy M83 in Hydra on February 23, 1752. Johann Bode discovered the globular cluster M53 in Coma Berenices on February 3, 1775. The planetary nebula M97 in Ursa Major was discovered by Pierre François André Méchain on February 16, 1781. Caroline Herschel discovered the open cluster NGC 2360 in Canis Major on February 26, 1783. William Herschel discovered the face-on barred spiral galaxy NGC 4027 in Corvus on February 7, 1785. William Herschel's 40-foot-focal-length telescope saw first light on February 19, 1787. Clyde Tombaugh discovered Pluto on February 18, 1930. James Hey detected radio waves emitted by the Sun on February 27, 1942. Gerald Kuiper discovered the Uranian satellite Miranda (magnitude +15.8) on February 16, 1948. The first pulsar, PSR B1919+21, was discovered by Jocelyn Bell Burnell and Antony Hewish on February 24, 1967. Supernova 1987A was discovered by Ian Shelton, Oscar Duhalde, and Albert Jones on February 23, 1987.

The Sun, the Moon, & the Planets



The Moon is 25.7 days old, is illuminated 14.5%, subtends 29.5', and is located in the constellation of Sagittarius at 0:00 UT on February 1st. The Moon attains its greatest northern declination (+21.5 degrees) for the month on February 16th and greatest southern declination (-21.5 degrees) on February 2nd. Longitudinal libration is at a maximum of +7.7 degrees on February 25th and at a minimum of -7.7 degrees on February 12th. Latitudinal libration is at a maximum of +6.8 degrees on February 11th and a minimum of -6.7 degrees on December 23rd. New Moon occurs on February 4th. The Moon is at the farthest apogee of the year (distance 63.74 Earth-radii) on February 5th and at the nearest perigee of the year (distance 55.94 Earth-radii) on February 19th. Large tides will occur following the Full Moon on February 19th. On February 10th, the waxing crescent Moon, Mars, and Uranus lie within a circle with a diameter of less than six degrees. The waning crescent Moon lies almost halfway between Jupiter and Saturn, with Venus positioned to the lower left of the two gas giants, on the morning of February 28th. The Lunar X occurs on February 12th and the Curtiss Cross on February 28th. The Moon, from certain parts of the world, occults Saturn and Pluto on February 2nd and Vesta on February 6th. Browse <http://www.lunar-occultations.com/iota/> for information on these events and upcoming lunar occultations. Click on <http://www.calendar-...r/2019/february> for a February 2019 lunar calendar. Visit <http://saberdoesthes...does-the-stars/> for tips on spotting extreme crescent Moons. Times and dates for the lunar crater light rays predicted to occur this month are available at <http://www.lunar-occ...o/rays/rays.htm>

The Sun is located in the constellation of Capricornus on February 1st. It enters Aquarius on February 16th.

Brightness, apparent size, illumination, distance from the Earth in astronomical units, and location data for the planets and Pluto on February 1: Mercury (magnitude -1.5, 4.8", 100% illuminated, 1.40 a.u., Capricornus), Venus (magnitude -4.3, 19.2", 62% illuminated, 0.87 a.u., Sagittarius), Mars (magnitude +0.9, 6.1", 89% illuminated, 1.53 a.u., Pisces), Jupiter (magnitude -1.9, 33.6", 99% illuminated, 5.86 a.u., Ophiuchus), Saturn (magnitude +0.6, 15.2", 100% illuminated, 10.93 a.u., Sagittarius), Uranus (magnitude +5.8, 3.5", 100% illuminated, 20.28 a.u. on February 15th, Pisces), Neptune (magnitude +8.0, 2.2", 100% illuminated, 30.87 a.u. on February 15th, Aquarius), and Pluto (magnitude +14.3, 0.1", 100% illuminated, 34.30 a.u. on February 15th, Sagittarius).

Mercury can be seen in the west and Mars, Uranus, and Neptune in the southwest in the evening sky. In the morning sky, Venus, Jupiter, and Saturn lie in the southeast.

Mercury is at its greatest heliocentric latitude south on February 1st. It reappears from superior conjunction low in the west at dusk around February 11th or February 12th. Mercury is at the ascending node on February 20th and at perihelion on February 25th. The speediest planet reaches greatest eastern elongation on the North American evening of February 26th. Mercury is approximately nine degrees above the horizon 45 minutes after sunset at that time. This will be the best evening apparition of 2019 for northern hemisphere observers.

Venus is visible low in the southeast before sunrise. Observers in the southern hemisphere are favored. Venus decreases in apparent size from 19.2 arc seconds to 15.7 arc seconds and increases in illumination from 62% to 72% this month. It will remain in the gibbous phase for the rest of the year. The brightest planet passes two degrees north of M20 (the Trifid Nebula) on February 4th, two degrees south of the open cluster M25 and three degrees north of the globular cluster M22 on February 10th and February 11th, and just over one degree north of Saturn on February 18th. The planet's eastward motion of about one degree per day places it less than three degrees north-northwest of the globular cluster M75 by the end of February.

Mars dims from magnitude +0.9 to magnitude +1.2 and shrinks in apparent diameter from 6.1 arc seconds to 5.3 arc seconds by the end of February. A crescent Moon passes six degrees southeast of Mars on February 10th. Mars departs Pisces and enters Aries on February 12th.

As February begins, **Jupiter** rises after 3:30 a.m. local time. By the end of February, the gas giant planet rises at 2:00 a.m. local time. It brightens from magnitude -1.9 to magnitude -2.0 and increases in apparent diameter from 33.6 arc seconds to 36.1 arc seconds this month. The waning crescent Moon passes two degrees to the north of Jupiter on February 27th. A shadow transit by the Galilean satellite Io takes place on the morning of February 6th starting at 10:45 UT (5:45 a.m. EST). Just over an hour later at 11:49 UT (6:49 a.m. EST), Io begins to transit the planet. Callisto lies due north of Jupiter that morning. Data on Galilean satellite events is available online at <http://www.shallowsky.com/jupiter/> and <http://www.skyandtel...watching-tools/> and on page 51 of the February 2019 issue of Sky & Telescope. Click on <http://www.skyandtel...watching-tools/> or consult pages 50 and 51 of the February 2019 issue of Sky & Telescope to determine transit times of the central meridian by the Great Red Spot.

As the month ends, **Saturn** shines at magnitude +0.6. Its ring system spans 35 arc seconds and is inclined 24 degrees from edge-on. The waning crescent Moon passes less than one degree north of Saturn on February 2nd. Saturn and Venus lie within 2.5 degrees of each other from February 16th to February 20th. Saturn is 1.1 degrees south of Venus on February 18th. The Ringed Planet rises shortly after 4:00 a.m. local time by the end of February. For information on the satellites of Saturn, browse <http://www.skyandtel...watching-tools/>

Uranus enters Aries on February 5th, where it will remain for the remainder of the year. On February 1st, Uranus is located seven degrees east-northeast of Mars. The angular distance between the two planets decreases by more than one half degree per day. The gap narrows to 1.5 degrees by February 10th. On February 12th, Uranus is 1.0 degree south-southeast of Mars. The following day it is 1.1 degrees south of Mars.

Neptune lies 0.8 degree due north of the fifth-magnitude star 83 Aquarii on February 1st. The eighth planet moves to a position 0.9 degree northeast of 83 Aquarii a week later. Neptune disappears from view by the second week of February.

The dwarf planet **Pluto** is not visible this month.

Asteroids



Asteroid **532 Herculina** heads north-westward through Leo and Cancer this month. It reaches a peak magnitude of +8.9 when it reaches opposition on February 6th. Other asteroids brighter than magnitude +11.0 that reach opposition this month include 129 Antigone (magnitude +10.8) in Leo on February 17th and 349 Dembowska (magnitude +10.3) in Leo on February 27th. On the morning of February 11th, the sixteenth-magnitude asteroid 301 Bavaria occults the ninth-magnitude star HD 144893 (HIP 79094) in Scorpius for a maximum of 2.3 seconds for observers in parts of North America. Browse http://asteroidoccul...1_301_62730.htm for more on this occultation. The seventeenth-magnitude asteroid 4388 occults the first-magnitude star Sirius (Alpha Canis Majoris) for a maximum of 1.8 seconds on the night of February 18th/19th from parts of North America. See http://asteroidoccul...4388_62950.htm for additional information on this event and http://asteroidoccul.../2019_02_si.htm for information on other asteroid occultation events taking place this month. Consult <http://www.curtrenz.com/asteroids.html> to learn more about a number of asteroids

Carbon Star



Notable carbon star for February: BL Orionis (Orion) Right Ascension 6^h 25^m 28^s | Declination +14° 43' 19"

Comets



Comet 46P/Wirtanen travels southeastward through Ursa Major during February. It passes less than one half of a degree west of the third-magnitude star Theta Ursa Majoris on February 10th and February 11th. Comet C/2018 Y1 (Iwamoto) will reach perihelion in early February. This speedy comet comes close to the spiral galaxy M104 (the Sombrero Galaxy) in Virgo on February 2nd and very close to the barred spiral galaxy M95 in Leo on February 10th. Comet Iwamoto will pass within 45 million kilometers (28 million miles) of the Earth on February 10th and reach a maximum predicted brightness of seventh magnitude. Click on <https://earthsky.org...to-jan-feb-2019> for more on this comet. Visit <http://cometchasing.skyhound.com/> and <http://www.aerith.ne...t/future-n.html> for additional information on comets visible this month.

Meteors



The major meteor showers that will occur this year are discussed at <https://www.skyandtelescope.com/magazine/observing/meteor-showers-in-2019/>

Orbiting Earth



Information on Iridium flares and passes of the ISS, the Tiangong-2, the USAF's X-37B, the HST, and other satellites can be found at <http://www.heavens-above.com/>. Satellite information with ISS Live HD streaming <https://www.n2yo.com>

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

The Deep Sky



Free star maps for the month can be downloaded at <http://www.skymaps.com/downloads.html> and <http://www.telescopethly.com/Star-Chart>

The famous eclipsing variable star Algol (Beta Persei) is at a minimum, decreasing in magnitude from 2.1 to 3.4, on February 1st, 4th, 7th, 9th, 12th, 15th, 18th, 21st, 24th, and 27th. Consult page 50 of the February 2019 issue of Sky & Telescope for the times of the minima. The Demon Star is at minimum brightness for approximately two hours centered at 11:55 p.m. EST on February 3rd (4:55 UT on February 4th), at 8:45 p.m. EST on February 6th (1:45 UT on February 7th), at 1:41 a.m. EST on February 24th (6:41 UT on February 24th), and at 10:30 p.m. EST on February 26th (3:30 UT on February 27th). For more on Algol, see <http://stars.astro.illinois.edu/sow/Algol.html> and <http://www.solstation.com/stars2/algol3.htm>

Forty binary and multiple stars for February: 41 Aurigae, Struve 872, Otto Struve 147, Struve 929, 56 Aurigae (Auriga); Nu-1 Canis Majoris, 17 Canis Majoris, Pi Canis Majoris, Mu Canis Majoris, h3945, Tau Canis Majoris (Canis Major); Struve 1095, Struve 1103, Struve 1149, 14 Canis Minoris (Canis Minor); 20 Geminorum, 38 Geminorum, Alpha Geminorum (Castor), 15 Geminorum, Lambda Geminorum, Delta Geminorum, Struve 1108, Kappa Geminorum (Gemini); 5 Lyncis, 12 Lyncis, 19 Lyncis, Struve 968, Struve 1025 (Lynx); Epsilon Monocerotis, Beta Monocerotis, 15 (S) Monocerotis (Monoceros); Struve 855 (Orion); Struve 1104, k Puppis, 5 Puppis (Puppis)

Fifty deep-sky objects for February: NGC 2146, NGC 2403 (Camelopardalis); M41, NGC 2345, NGC 2359, NGC 2360, NGC 2362, NGC 2367, NGC 2383 (Canis Major); M35, NGC 2129, NGC 2158, NGC 2266, NGC 2355, NGC 2371-72, NGC 2392, NGC 2420 (Gemini); NGC 2419 (Lynx); M50, NGC 2232, NGC 2237, NGC 2238, NGC 2244, NGC 2245, NGC 2251, NGC 2261, NGC 2264, NGC 2286, NGC 2301, NGC 2311, NGC 2324, NGC 2335, NGC 2345, NGC 2346, NGC 2353 (Monoceros); NGC 2169, NGC 2174, NGC 2194 (Orion); M46, M47, M93, Mel 71, NGC 2421, NGC 2423, NGC 2438, NGC 2439, NGC 2440, NGC 2467, NGC 2506, NGC 2509 (Puppis)

Top ten binocular deep-sky objects for February: M35, M41, M46, M47, M50, M93, NGC 2244, NGC 2264, NGC 2301, NGC 2360

Top ten deep-sky objects for February: M35, M41, M46, M47, M50, M93, NGC 2261, NGC 2362, NGC 2392, NGC 2403

The objects listed above are located between 6:00 and 8:00 hours of right ascension.

Data on current supernovae can be found at <http://www.rochester.edu/astro/snimages/>

The zodiacal light should be visible from a dark location in the west after evening twilight for two weeks starting on February 21st. Click on <https://www.atoptics.co.uk/ighsky/zod1.htm> for more on the zodiacal light.

Finder charts for the Messier objects and other deep-sky objects are posted at <https://freestarcharts.com/messier> and <https://freestarcharts.com/ngc-ic> and <http://www.cambridge...y-september.htm>

Telrad finder charts for the Messier Catalog and the SAC's 110 Best of the NGC are posted at <http://www.astro-tom...charts/map1.pdf> and <http://sao64.free.fr...ataloguesac.pdf> respectively.

Information pertaining to observing some of the more prominent Messier galaxies can be found at <http://www.cloudynig...ur-astronomers/>

Author Phil Harrington offers an excellent freeware planetarium program for binocular observers known as TUBA (Touring the Universe through Binoculars Atlas), which also includes information on purchasing binoculars, at <http://www.philharrington.net/tuba.htm>

Stellarium and Cartes du Ciel are useful freeware planetarium programs that are available at <http://stellarium.org/> and <https://www.ap-i.net/skychart/en/start>

Deep-sky object list generators can be found at <http://www.virtualcolony.com/sac/> and <http://tonightssky.com/MainPage.php> and <https://dso-browser.com/>

Freeware sky atlases can be downloaded at <http://www.deepskywa...-atlas-full.pdf> and <http://astro.mxd120....ee-star-atlases>.

Information on observing some of the more prominent Messier galaxies is available at <http://www.cloudynig...ur-astronomers/>

Challenge deep-sky object: IC 443 (Gemini) **Jellyfish Nebula** Right Ascension 06^h 17^m 13^s | Declination +22° 31' 05"



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IC 443
Jellyfish Nebula

Description: IC443 is a beautiful supernova remnant in the constellation Gemini produced by a supernova explosion thought to have occurred about 30,000 years ago. X-ray emissions are produced by a neutron star hidden deep within the nebula, which is all that remains of the original star. The neutron star is highly dense and rapidly rotating, representing the end stage of a star with between 1.4 and 3 solar masses. In addition to hydrogen, the nebula is comprised of other more complex elements such as oxygen, silicon, carbon, and iron, which were created during the star's lifetime through nuclear fusion. These elements may someday become part of a solar system that could support life.

Phil Harrington's Cosmic Challenge

Cosmic Challenge:

February 2019

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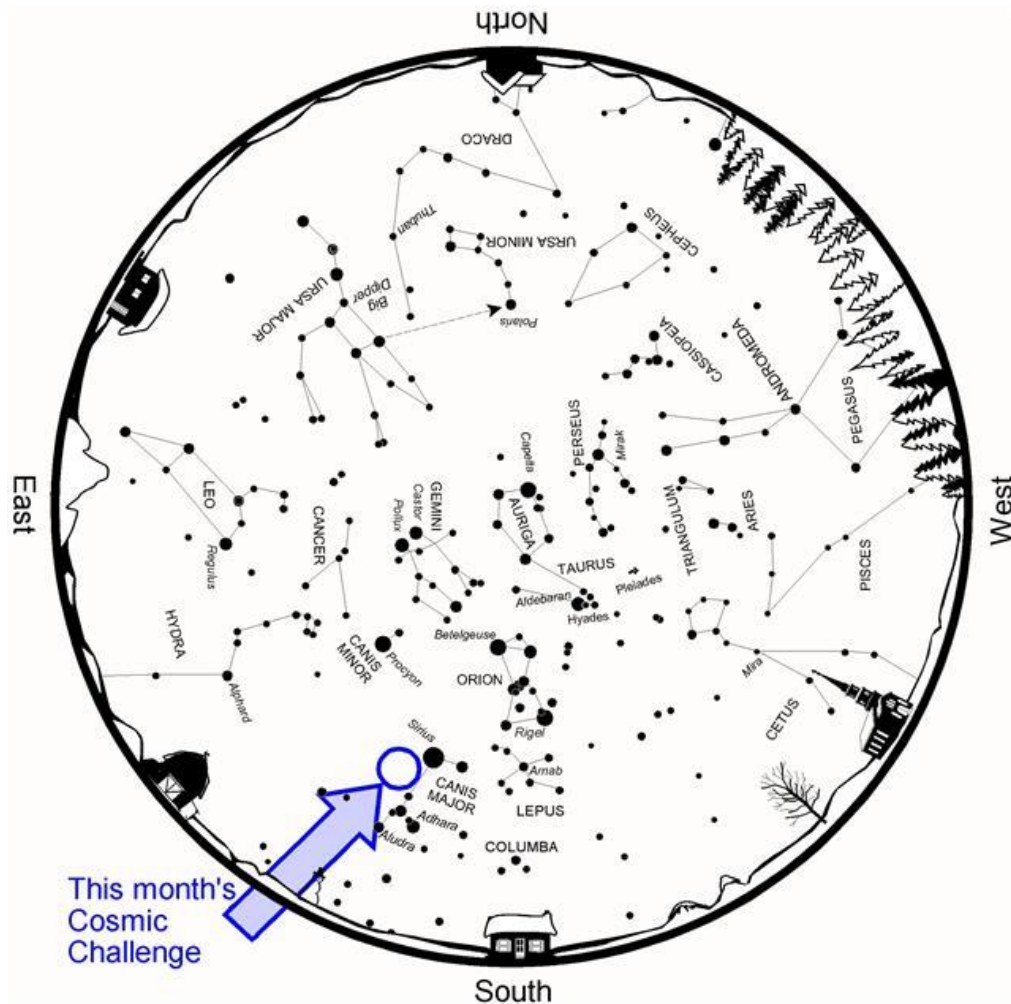
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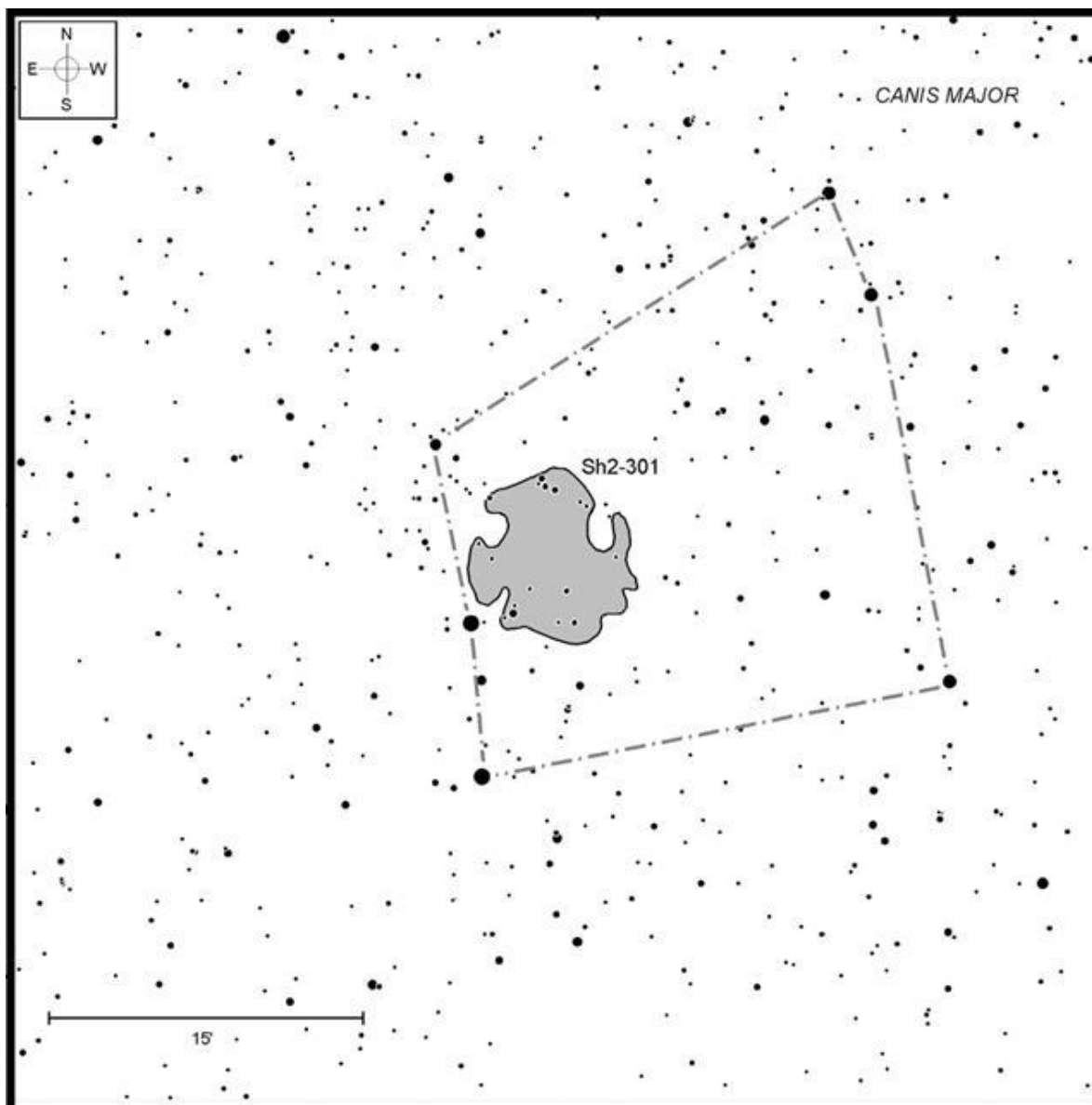
This month's suggested aperture range: 10 to 14-inch (25-36cm) telescopes.

Target	Type	RA	DEC	Constellation	Mag	Size
Sharpless 2-301	Emission nebula	07 09.8	-18 29.8	Canis Major	--	9'x8'

The 1950s was a banner decade for deep-sky catalogs. Not only did it give us such seminal works as the Abell catalogs of galaxy clusters and planetary nebulae, the decade also closed with the release of the second edition of Stewart Sharpless's famous catalog of emission nebulae. Sharpless had assembled his collection of objects from his research at the United States Naval Observatory's Flagstaff Station in Arizona. The ["Sharpless 2" catalog](#), a revised version of a [list](#) he first published in 1953 while at Mount Wilson Observatory, lists 313 emission nebulae (Hydrogen-II regions, as Sharpless preferred to call them) that are among the most spectacular photographic sights that the Milky Way has to offer.



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



Above: Finder chart for this month's [Cosmic Challenge](#).
 Credit: Chart adapted from [Cosmic Challenge](#) by Phil Harrington
 Click on the chart to open a printable PDF version in a new window

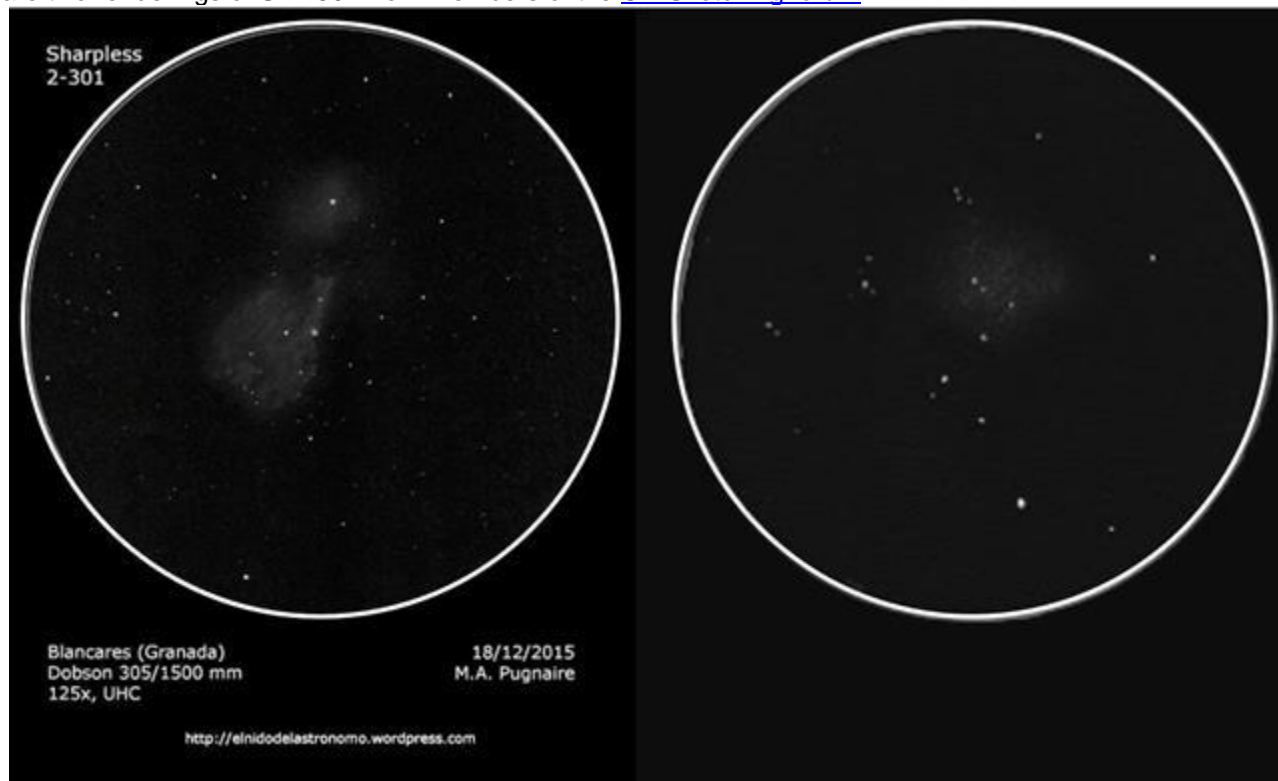
While a few of Sharpless's entries, such as Sh2-25 (better known as M8, the Lagoon Nebula) and Sh2-49 (M16, the Eagle Nebula), are well known to visual observers, most are among of the most challenging objects to see visually.

If you have never made a concerted effort to see some of the lesser known Sharpless objects, then this challenge, Sh2-301 in Canis Major, is a good introduction to the sport. You will find it about 6° east-southeast of Sirius [Alpha (α) Canis Majoris], within a diamond of six 6th- to 8th-magnitude stars. Approximately 42,000 light years lie between it and our telescopes.

Unlike many of the Sharpless objects, which can cover swaths of sky larger than the fields of many telescopes, Sh2-301 measures just 9'x8' across. That's small enough to fit easily into a single eyepiece field, yet is still large enough to be apparent if you are aimed in the right direction. My best view with my 10-inch (25cm) comes at 58x, with a 22mm eyepiece and a narrowband (UHC-style) filter in place. Without a filter, the nebula is difficult to see, even from a dark site. With a filter in place, however, hints of the cloud may be glimpsed from suburban settings as long as light pollution is minimal toward the south.

From dark-sky sites, Sh2-301 reveals an unusual shape that is best described as an irregular, three-lobed fog with thin lanes of dark nebulosity threaded throughout. Several stars appear superimposed on the nebula. The brightest is a 10th-magnitude point found toward the cloud's southeastern edge. Another tuft of brighter nebulosity appears to surround a triangle of 12th-magnitude stars at the northern border. These stars make a handy gauge for judging the full extent of the nebula.

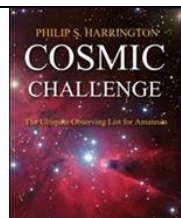
Here are two renderings of Sh2-301 from members of the [CN Sketching forum](#).



Above left: Sh2-301 sketched by CN member [Sheliak_sp](#) through a 12-inch (30.5cm) scope.

Above right: Sketch by member [Raul Leon](#) using a 14.5-inch (36.6cm) scope.

Have a favorite challenge object of your own? I'd love to hear about it, as well as how you did with this month's test. Contact me through my [web site](#) or post to this month's discussion forum.
Until next month, remember that half of the fun is the thrill of the chase. Game on!



About the Author: Phil Harrington 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 to learn more.

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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!

Hexagon at Night, Quartet in the Morning

David Prosper

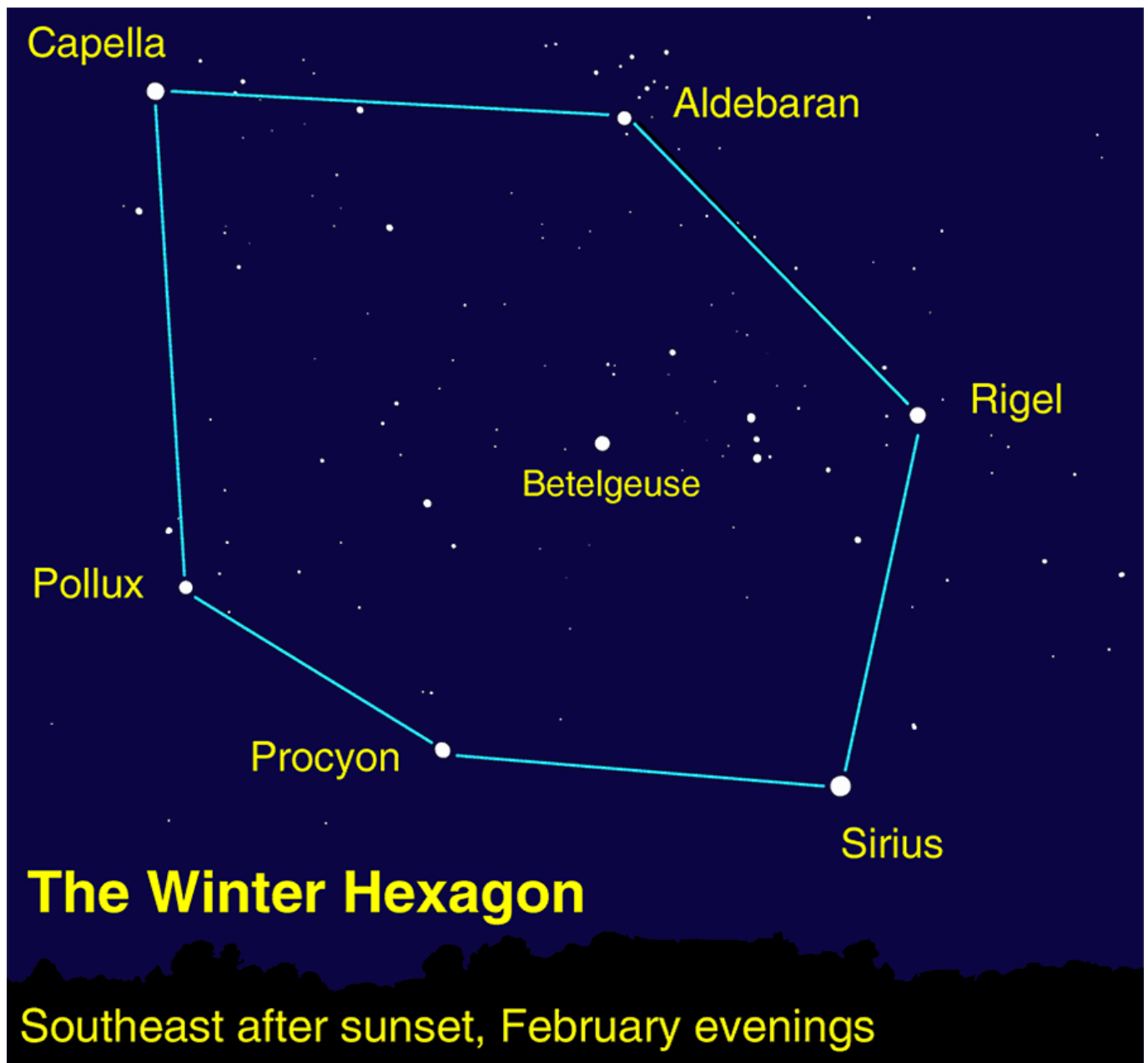
The stars that make up the **Winter Hexagon** asterism are some of the brightest in the night sky and February evenings are a great time to enjoy their sparkly splendor. The Winter Hexagon is so large in size that the six stars that make up its points are also the brightest members of six different constellations, making the Hexagon a great starting point for learning the winter sky. Find the Hexagon by looking southeast after sunset and finding the bright red star that forms the “left shoulder” of the constellation Orion: **Betelgeuse**. You can think of Betelgeuse as the center of a large irregular clock, with the Winter Hexagon stars as the clock’s hour numbers. Move diagonally across Orion to spot its “right foot,” the bright star **Rigel**. Now move clockwise from Rigel to the brightest star in the night sky: **Sirius** in Canis Major. Continue ticking along clockwise to **Procyon** in Canis Minor and then towards **Pollux**, the brighter of the Gemini twins. Keep moving around the circuit to find **Capella** in Auriga, and finish at orange **Aldebaran**, the “eye” of the V-shaped face of Taurus the Bull.

Two naked-eye planets are visible in the evening sky this month. As red **Mars** moves across Pisces, NASA’s InSight Mission is readying its suite of geological instruments designed to study the Martian interior. InSight and the rest of humanity’s robotic Martian emissaries will soon be joined by the Mars 2020 rover. The SUV-sized robot is slated to launch next year on a mission to study the possibility of past life on the red planet. A conjunction between Mars and **Uranus** on February 13 will be a treat for telescopic observers. Mars will pass a little over a degree away from Uranus and larger magnifications will allow comparisons between the small red disc of dusty Mars with the smaller and much more distant blue-green disc of ice giant Uranus.

Speedy **Mercury** has a good showing this month and makes its highest appearance in the evening on February 27; spot it above the western horizon at sunset. An unobstructed western view and binoculars will greatly help in catching Mercury against the glow of evening twilight.

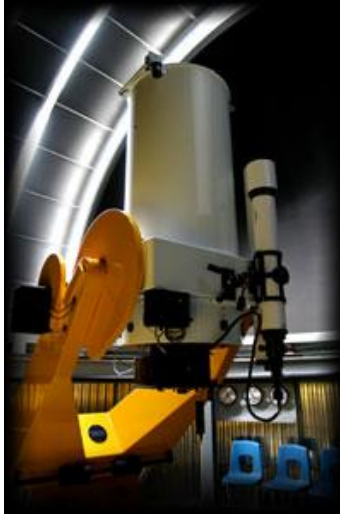
The morning planets put on quite a show in February. Look for the bright planets **Venus**, **Jupiter**, and **Saturn** above the eastern horizon all month, at times forming a neat lineup. A crescent **Moon** makes a stunning addition on the mornings of February 1-2, and again on the 28th. Watch over the course of the month as Venus travels from its position above Jupiter to below dimmer Saturn. Venus and Saturn will be in close conjunction on the 18th; see if you can fit both planets into the same telescopic field of view. A telescope reveals the brilliant thin crescent phase of Venus waxing into a wide gibbous phase as the planet passes around the other side of our Sun. The Night Sky Network has a simple activity that helps explain the nature of both Venus and Mercury’s phases at bit.ly/venusphases

You can catch up on all of NASA's current and future missions at [nasa.gov](https://www.nasa.gov)



*Caption: The stars of the Winter Hexagon
Image created with help from Stellarium*

Observatories and Planetarium



CSI Centennial Observatory / Faulkner Planetarium Herrett Center

Event	Place	Date	Time	Admission
Monthly Free Star Party	Centennial Observatory	Saturday, February 9 th , 2019	7:00 PM to midnight	FREE
Telescope Tuesday	Centennial Observatory	Tuesday, February 12 th , 2019	7:00 to 9:00 PM	\$1.50 or free with Faulkner Planetarium admission
Telescope Tuesday	Centennial Observatory	Tuesday, February 26 th , 2019	7:30 to 9:00 PM	\$1.50 or free with Faulkner Planetarium admission

College of Southern Idaho Campus Twin Falls, ID Faulkner Planetarium / Show Times

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



[Now Showing](#)

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

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.