Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

www.mvastro.org

Membership Meeting

Saturday, September 8th 2018
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

September 2018

Florida is quite a change of climate! Heat, humidity, insects and afternoon thunderstorms are the summer norm here and I must say it takes some getting used to. I'm sure I'll get acclimatized but meanwhile it is a struggle. The sky does get clear late at night and stars to about 4th magnitude are visible from where I'm staying in Jacksonville.

I met with the president and vice president of the Northeast Florida Astronomical Society and we had a long talk about what that group does. Their group, as with every Astro society, has areas they are most interested in and members whose specialties are the focus for their monthly programs. This group travels quite a bit and, given Jacksonville's proximity to Mexico and the Caribbean, they do attend activities there. They are planning a trip to see the 2019 solar eclipse and tour the Chilean observatories. They have also traveled to American observatories such as McDonald observatory in Texas. This makes me wonder if we could plan a trip to somewhere like Flagstaff or Kitt Peak and visit those facilities. Road trip anyone?

Last month I had a good reminder of how dark our skies are. I watched the Perseid meteor shower from the Croy Creek Trailhead parking lot west of Hailey and was surprised at the quality of the seeing. My dark sky meter gave an average reading of 21.6 at 11:45 pm and the Milky Way was brilliant. Even with my old eyes, I could see 6th magnitude. In fact, one of the people viewing the Perseid shower with me was awestruck by the view and exclaimed she had never seen the Milky Way from her home in Michigan. Perhaps this could become another site for our observing sessions.

This is in stark contrast to the skies here in north Florida and a good reminder of how fortunate we are to have such easily accessible dark skies. The Jacksonville group must travel at least 50 miles west of the city into a National Forest just to get a glimpse of our galaxy. When I told them about the Dark Sky Reserve, they exchanged a glance and started planning a trip our way.

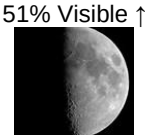
September does bring cooler weather and the beginning of fall observing. I hope all of you can get out to enjoy and appreciate our dark skies. We have the Craters of the Moon star party on Friday, September 7 followed on Saturday with our meeting. Enjoy these get-togethers and the cooler weather.

All best,

Tim

Calendar

September 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3  Last Quarter	4	5	6	7 Idaho Star Party™ 7th 8th 	8 MVAS Meeting at 7:00pm at the Herrett Center Faulkner Planetarium Public Star Centennial Obs.
9 New Moon Lunation 1184 1% Visible ↓ 	10	11	12	13	14	15
16 First Quarter 51% Visible ↑ 	17	18	19	20	21	22 Autumnal Equinox 
23	24	25 Full Moon 100% Visible Thunder Moon 	26	27	28	29
30						

Snake River Skies is the Newsletter of the Magic Valley Astronomical Society and is published electronically once a month.
 Full Moon names follow the traditional Algonquin First Nation history.

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

Celestial Events Calendar

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

9/1 The equation of time equals 0 at 14:00
9/2 Venus is 1.4 degrees south of the first-magnitude star Spica (Alpha Virginis) at 9:00; the Moon is 8.8 degrees south-southeast of the bright open cluster M45 (the Pleiades or Subaru) in Taurus at 9:00; Mercury is at perihelion (0.30749 astronomical units from the Sun) at 10:00; asteroid 115 Thyra (magnitude +9.9) is at opposition in Pegasus at 12:29
9/3 The Moon is 1.2 degrees north-northwest of the first-magnitude star Aldebaran (Alpha Tauri); Last Quarter Moon occurs at 2:37; a double Galilean satellite shadow transit begins at 18:31; the Curtiss Cross, an X-shaped illumination effect located between the craters Parry and Gambart, is predicted to be visible at 18:52
9/5 Venus is at aphelion (0.72824 astronomical units from the Sun) at 8:00; Mercury is 1.0 degree north of the first-magnitude star Regulus (Alpha Leonis) at 23:00; asteroid 27 Euterpe (magnitude +9.8) is at opposition in Aquarius.
9/6 The Moon is 7.3 degrees south of the first-magnitude star Pollux (Beta Geminorum) at 4:00; Saturn is stationary in right ascension at 9:00; Saturn is stationary in longitude at 10:00; the Moon is at the ascending node (longitude 125.4 degrees) at 22:43
9/7 The Moon is 1.4 degrees south of the bright open cluster M44 (the Beehive Cluster or Praesepe) in Cancer at 3:00; a double Galilean satellite shadow transit begins at 7:50; Neptune (magnitude +7.8, apparent size 2.4") is at opposition
9/8 The Moon is at perigee, subtending 33' 04" from a distance of 361,351 kilometers (224,533 miles), at 1:20; the Moon is 1.7 degrees north-northeast of Regulus at 14:00; the Moon is 0.89 degree north-northeast of Mercury at 23:00
9/9 New Moon (lunation 1184) occurs at 18:01
9/10 Comet 21P/Giacobini-Zinner is at perihelion (1.013 astronomical units from the Sun) at 7:46
9/12 The Moon is 7.1 degrees north-northeast of Spica at 8:00; Mercury is at its greatest heliocentric latitude north (7.0 degrees north of the ecliptic plane) at 15:00; the Moon is 9.9 degrees north-northeast of Venus at 22:00
9/14 The Moon is 4.2 degrees north-northeast of Jupiter at 5:00
9/15 The Moon is 8.8 degrees north of the first-magnitude star Antares (Alpha Scorpii) at 21:00
9/16 Mars (magnitude -1.7) is at perihelion (1.38144 astronomical units from the Sun) at 13:00.9/17 Sunrise takes place at the isolated lunar mountain Mons Pico at 9:24; the Moon is 2.1 degrees north of Saturn.
9/18 Sunrise takes place at the isolated lunar mountain Mons Piton at 00:19; asteroid 173 Ino (magnitude +10.3) is at opposition in Cetus at 1:56; 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 occur at 6:26
9/19 Asteroid 30 Urania (magnitude +9.6) is at opposition in Pisces at 1:57
9/20 The Moon is at apogee, subtending 29' 31" from a distance of 404,876 kilometers (251,578 miles), at 0:53; the Moon is 4.7 degrees north of Mars at 7:00
9/21 Mercury is in superior conjunction with the sun (1.387 astronomical units from the Earth) at 2:00; Venus is at its greatest illuminated extent at 10:00
9/23 The autumnal equinox occurs in the northern hemisphere at 1:54; the Moon is 2.3 degrees south-southeast of Neptune at 17:00
9/24 Asteroid 10 Hygiea (magnitude +10.1) is at opposition in Pisces at 0:44
9/25 Full Moon (known as the Barley, Corn, or Fruit Moon), this year's Harvest Moon, occurs at 2:52
9/27 Asteroid 4 Vesta (magnitude +7.4) is 2.8 degrees south of Saturn (magnitude +0.6) at 9:20; the Moon is 4.5 degrees south-southeast of Uranus at 10:00; Venus is at its greatest heliocentric latitude south (3.4 degrees south of the ecliptic plane) at 13:00; the dwarf planet 136472 Makemake is in conjunction with the Sun at 13:28
9/29 Venus is 13.8 degrees west-southwest of Jupiter at 0:00; the Moon is 8.6 degrees south-southeast of M45 at 14:00
9/30 Pluto is stationary in right ascension at 5:00; the Moon is 1.4 degrees north of Aldebaran at 8:00; Mars and Neptune are at heliocentric conjunction (heliocentric longitude 345.6 degrees) at 8:00; Pluto is stationary in longitude at 17:00

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.

The Sun, the Moon, & the Planets

The **Moon** is 19.4 days old, subtends 30.5 arc minutes, is illuminated 82.3%, and is located in Pisces on September 1st at 0:00 UT. The Moon is at its greatest northern declination (+20.7 degrees) on September 5th and its greatest southern declination (-20.8 degrees) on September 18th. Longitudinal libration is at a maximum of +7.0 degrees on September 14th and a minimum of -6.2 degrees on September 1st. Latitudinal libration is at a maximum of +6.7 degrees on September 11th and +6.6 degrees on September 28th and a minimum of -6.7 degrees on September 13th. An article on lunar libration appears on pages 52-54 of the September 2018 issue of Sky & Telescope. New Moon occurs on September 9th. The Moon is at perigee (56.65 Earth-radii distant) on September 8th and at apogee (63.48 Earth-radii distant) on September 20th. The waning gibbous Moon occults Aldebaran, the brightest star that it ever can occult, from certain parts of the world on September 3rd. Consult http://www.lunar-occ...ota/iotandx.htm for further information on this event Visit http://saberdoesthes...s-the-stars/for tips on spotting extreme crescent Moons and http://www.curtrenz.com/moon06.html for Full Moon data. Times and dates for the lunar light rays predicted to occur in June 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 during the middle part of September. 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. The Sun crosses the celestial equator from north to south at 1:54 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 -0.8, 6.4", 65% illuminated, 1.06 a.u., Leo), Venus (magnitude -4.6, 29.1", 40% illuminated, 0.57 a.u., Virgo), Mars (magnitude -2.1, 20.9", 94% illuminated, 0.45 a.u., Sagittarius), Jupiter (magnitude -1.9, 34.8", 99% illuminated, 5.67 a.u., Libra), Saturn (magnitude +0.4, 17.3", 100% illuminated, 9.61 a.u., Sagittarius), Uranus (magnitude +5.7, 3.7", 100% illuminated, 19.08 a.u. on September 16th, Aries), Neptune (magnitude +7.8, 2.4", 100% illuminated, 28.95 a.u. on September 16th, Aquarius), and Pluto (magnitude +14.2, 0.1", 100% illuminated, 33.18 a.u. on September 16th, Sagittarius). This month Venus and Jupiter are located in the southwest, Mars and Saturn in the south, and Neptune in the east during the evening. At midnight, Mars and Saturn can be found in the southwest, Uranus in the east, and Neptune in the south. Mercury is in the east, Uranus is in the southwest, and Neptune is in the west in the morning sky.

Mercury attains an altitude of ten degrees in the east-northeast 30 minutes before sunrise on September 1st. It is at perihelion on September 2nd. On the morning of September 5th, Mercury is 1.5 degrees north of Regulus. The speediest planet is lost in the Sun's glare by September 11th. On September 12th, it's at its greatest heliocentric latitude south. Mercury is in superior conjunction with the Sun on September 21st.

During September, **Venus** increases in apparent size from 29.1 to 45.5 arc seconds while decreasing in illumination from 40 to 18%. It reaches a peak brightness of magnitude -4.8. Venus passes 1.4 degrees south of Spica on September 2nd and is at aphelion on September 5th. A slender crescent Moon passes ten degrees north of Venus on September 12th. The brightest planet reaches its greatest illuminated extent on September 21st when it is at a declination of -19 degrees and is at its greatest latitude south of the ecliptic plane on September 27th. On the evenings of September 27th through September 29th, Venus and Jupiter are separated by less than fourteen degrees. The altitude of Venus at sunset decreases from approximately fifteen degrees to seven degrees this month for observers at latitude 40 degrees north.

Mars decreases in apparent magnitude from -2.1, which is brighter than Jupiter, to -1.3 as it travels eastward through western Capricornus this month. Its apparent diameter shrinks from 20.9 to 16.0 arc seconds. Mars crosses the meridian at approximately 10:20 p.m. local time on the first day of September and shortly before 9:00 p.m. local time on the last day of the month. It sets just before 3:00 a.m. local time on September 1st and just after 1:30 a.m. local time on September 30th. The Red Planet is at perihelion on September 16th. In North America, the gibbous Moon passes five degrees north of Mars on the evening of September 19th/20th. Martian surface feature simulators are available at https://is.gd/marsprofiler and https://www.calsky.c...gi/Planets/5/1?

Jupiter sets around 10:15 p.m. EDT in early September. At that time, it lies a bit more than two degrees from Zubenelgenubi (Alpha Librae). The waxing crescent Moon passes four degrees to the north of the planet on the evening of September 13th. Jupiter decreases in brightness by 0.1 magnitude and 2.1 arc seconds in angular diameter this month. Browse http://www.skyandtel...watching-tools/ and https://www.projectp...om/jeve_grs.htm to determine transit times of

Jupiter's central meridian by the Great Red Spot. That information also appears on page 51 of the September 2018 issue of Sky & Telescope. Data on the Galilean satellites is available online at http://www.skyandtel...watching-tools/ and https://www.projectp....com/jevent.htm and on page 51 of the September 2018 issue of Sky & Telescope.

Saturn culminates an hour after sunset on the first day of September and sets before midnight local daylight time by the end of the month. Its rings span 38 arc seconds and are tilted 27 degrees with respect to the Earth, the maximum tilt of 2018. On September 1st, Saturn is situated 1.7 degrees to the east of M20 (the Lagoon Nebula) and 2.2 degrees to the northeast of M8 (the Lagoon Nebula). Saturn reaches its second stationary point on September 6th and resumes direct or prograde (eastward) motion. By the end of September, Saturn's eastward motion takes it 2.2 degrees to the east of M20. The Ringed Planet is two degrees south of the waxing gibbous Moon on September 17th. Saturn is at eastern quadrature on September 26th. Saturn's odd satellite Iapetus shines at tenth magnitude on September 1st, when it is located 8.4 arc minutes to the west of the planet. Iapetus dims to eleventh magnitude as it passes 1.7 arc minutes to the north of Saturn on September 18th. Twelfth-magnitude Enceladus and thirteenth-magnitude Mimas both reach greatest eastern elongation on the night of September 20/September 21st. An illustration showing their positions can be seen on page 42 of the September 2018 issue of Astronomy. For further information on Saturn's satellites, browse http://www.skyandtel...atching-tools/

Uranus is located in southwestern Aries, twelve degrees south of the second-magnitude star Hamal (Alpha Arietis). The waning gibbous Moon passes five degrees south of the planet on September 7th. Browse http://www.bluewater...anus_2018_1.pdf for a finder chart.

Neptune is located 2.2 degrees west-southwest of the fourth-magnitude star Phi Aquarii on the first day of September. The ice giant planet 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 7th. A finder chart for that night appears on page 36 of the September 2018 issue of Astronomy. The waning gibbous Moon passes two degrees to the south of Neptune on September 27th. A finder chart is posted http://www.bluewater...ne_2018_1.pdf

Additional online finder charts for Uranus and Neptune can be found at http://www.nakedeyep....com/uranus.htm and http://www.nakedeyep...com/neptune.htm and also at https://www.skyandte...EB_UrNep18.pdf and on pages 48 and 49 of the September 2018 issue of Sky & Telescope.

Pluto is located below the Teaspoon asterism in northeastern Sagittarius at a declination of nearly -22 degrees. The dwarf planet is highest in altitude in the late evening. Finder charts for Pluto are available on pages 48 and 49 of the July 2018 issue of Sky & Telescope and page 243 of the RASC Observer's Handbook 2018. A finder chart is posted online at http://www.bluewater...018-Mar2019.jpg

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

A wealth of current information on solar system celestial bodies is posted at http://nineplanets.org/ and http://www.curtrenz.com/astronomy.html

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

Asteroids

Asteroid 4 Vesta shines at seventh magnitude as it heads mostly eastward through Sagittarius this month. The main belt asteroid passes about one degree south of M8 (the Lagoon Nebula) on the nights of September 20th and September 21st. On the nights of September 23rd and September 24th, Vesta glides between the eighth-magnitude globular clusters NGC 6544 and NGC 6553. It is 2.8 degrees south of Saturn on September 27th. The following asteroids brighter than 11th magnitude are at opposition this month: asteroid 115 Thyra (magnitude +9.9) on September 2nd, asteroid 27 Euterpe (magnitude +9.8) on September 5, asteroid 173 Ino (magnitude +10.3) on September 18th, asteroid 30 Urania (magnitude +9.6) on September 19th, and asteroid 10 Hygiea (magnitude +10.1) on September 24th. The S-type main belt asteroid 80 Sappho (magnitude +11.8) occults the A2-type star HD 33864 (HIP 244403) on the morning of September 16th. Data on this and other asteroid occultations taking place this month is available at http://www.asteroido.../2018_09_si.htm and http://www.poyntsour.../New/Global.htm

A chart showing the position of Vesta (and Saturn) through June and July. Credit: Sky and Telescope.

Carbon Star

Notable carbon star for September: **LW Cygni |** Right Ascension $21^h\ 36^m\ 02.49619^s$ Declination +44° 22′ 28.5292″ It is best to try this challenge with a small telescope. Located in the constellation of Cygnus.

Comets

Comet 21P/Giacobini-Zinner, which is the source of October's Draconid or Giacobinid meteor shower, travels southeastward through Auriga, Taurus, and Gemini in September. Reaching a predicted peak brightness of magnitude seven in September, this comet is a fine binocular object. It passes within two degrees of the first-magnitude star Capella (Alpha Aurigae) on September 2nd and September 3rd and within two degrees to the east of the open clusters M36 and M38 on September 7th and September 8th. The periodic comet can be found approximately one degree from the rich open cluster M37 on September 10th. Comet 21P reaches perihelion (1.013 astronomical units from the Sun) on September 10th. It passes closest to the Earth (0.392 astronomical units distant) on September 11th and briefly enters Taurus on September 13th. On September 14th, the comet enters Gemini. It passes by the bright open cluster M35 on September 15th and very near the third-magnitude star Propus (Eta Geminorum) on September 16th. Comet 21P crosses into Orion on September 17th, reenters Gemini on September 21st, and enters Monoceros on September 23rd. It passes near NGC 2264 (the Christmas Tree Cluster) on September 24th, within on half of a degree of the open cluster NGC 2254 on September 26th, and less than two degrees from NGC 2237 (the Rosette Nebula) on the morning of September 27th. Additional information can be found at https://theskylive.com/21p-info and http://www.cometwatch.co.uk/comet-21p/ and on page 50 of the August 2018 issue of Sky & Telescope. For further information on comets visible this month, browse http://cometchasing.skyhound.com/ and http://www.aerith.ne.../future-n.html

Meteors

The minor meteor shower known as the Aurigids, which has a maximum hourly rate of just six per hour, peaks on the evening of September 1st. A waxing gibbous Moon sets before the radiant is high in the sky. 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 night of the New Moon. The radiant is located near the second-magnitude star Algol (Beta Persei) at 03h15m, +40 degrees.

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/

The Deep Sky

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)

Forty-five 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 4343, B361, Ba6, Be87, Cr 421, Do9, IC 1369, IC 4996, IC 1516, LDN 906, M29, M39, NGC 6866, NGC 6871, NGC 6888, NGC 6894, NGC 6910, NGC 6960, NGC 6992, NGC 7000, NGC 7008, NGC 7026, NGC 7027, NGC 7039, 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)

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

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

Freeware sky atlases can be downloaded at http://www.deepskywatch.com/files/deepsky-atlas/Deep-Sky-Hunter-atlas-full.pdf and http://astro.mxd120.com/free-star-atlases

Free star charts for the month can be downloaded at http://www.skymaps.com/downloads.html and https://www.telescop...thly-Star-Chart

Data on current supernovae can be found at http://www.rochester...y.org/snimages/

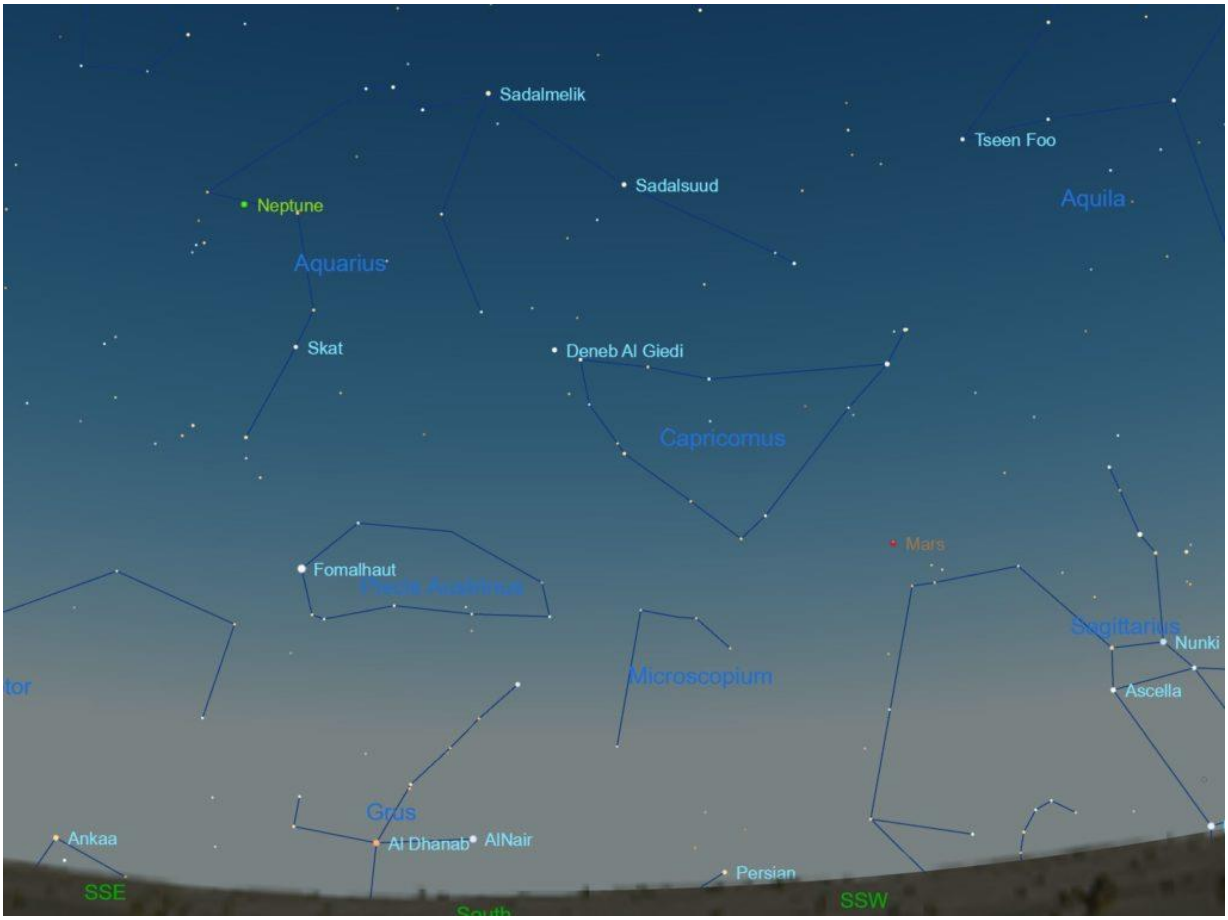
Finder charts for the Messier objects and other deep-sky objects are posted at https://freestarcharts.com/messier and https://freestarcharts.com/ngc-ic and http://www.cambridge..._april-june.htm

Telrad finder charts for the Messier Catalog and the SAC's 110 Best of the NGC are posted at http://www.astro-tom...charts/map1.pdf and http://www.saguaroas...k110BestNGC.pdf respectively.

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

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

The multiple star 36 Ophiuchi consists of three orange dwarf stars. For more on this interesting system, see https://stardate.org...orange-triplets and http://www.solstatio...rs/36ophiu3.htm



Above: The location of Neptune at opposition in September 2018.
Larger detail map: https://cosmicpursuits.com/wp-content/uploads/2018/08/Neptune-Sept-7-2018.jpg

A close-up of the location of Neptune between the stars theta and phi Aquarii when the planet is in opposition in September 2018.
https://cosmicpursuits.com/wp-content/uploads/2018/08/Neptune-Sept-7-2018-2.jpg

A Trip Through the Milky Way

By Jane Houston Jones and Jessica Stoller-Conrad

Feeling like you missed out on planning a last vacation of summer? Don't worry—you can still take a late summertime road trip along the Milky Way!

The waning days of summer are upon us, and that means the Sun is setting earlier now. These earlier sunsets reveal a starry sky bisected by the Milky Way. Want to see this view of our home galaxy? Head out to your favorite dark sky getaway or to the darkest city park or urban open space you can find.

While you're out there waiting for a peek at the Milky Way, you'll also have a great view of the planets in our solar system. Keep an eye out right after sunset and you can catch a look at Venus. If you have binoculars or a telescope, you'll see Venus's phase change dramatically during September—from nearly half phase to a larger, thinner crescent.

Jupiter, Saturn and reddish Mars are next in the sky, as they continue their brilliant appearances this month. To see them, look southwest after sunset. If you're in a dark sky and you look above and below Saturn, you can't miss the summer Milky Way spanning the sky from southwest to northeast.

You can also use the summer constellations to help you trace a path across the Milky Way. For example, there's Sagittarius, where stars and some brighter clumps appear as steam from a teapot. Then there is Aquila, where the Eagle's bright Star Altair combined with Cygnus's Deneb and Lyra's Vega mark what's called the "summer triangle." The familiar W-shaped constellation Cassiopeia completes the constellation trail through the summer Milky Way. Binoculars will reveal double stars, clusters and nebulae all along the Milky Way.

Between Sept. 12 and 20, watch the Moon pass from near Venus, above Jupiter, to the left of Saturn and finally above Mars! This month, both Neptune and brighter Uranus can also be spotted with some help from a telescope. To see them, look in the southeastern sky at 1 a.m. or later. If you stay awake, you can also find Mercury just above Earth's eastern horizon shortly before sunrise. Use the Moon as a guide on Sept. 7 and 8. Although there are no major meteor showers in September, cometary dust appears in another late summer sight, the morning zodiacal light. Zodiacal light looks like a cone of soft light in the night sky. It is produced when sunlight is scattered by dust in our solar system. Try looking for it in the east right before sunrise on the moonless mornings of Sept. 8 through Sept 23.

You can catch up on all of NASA's current—and future—missions at www.nasa.gov

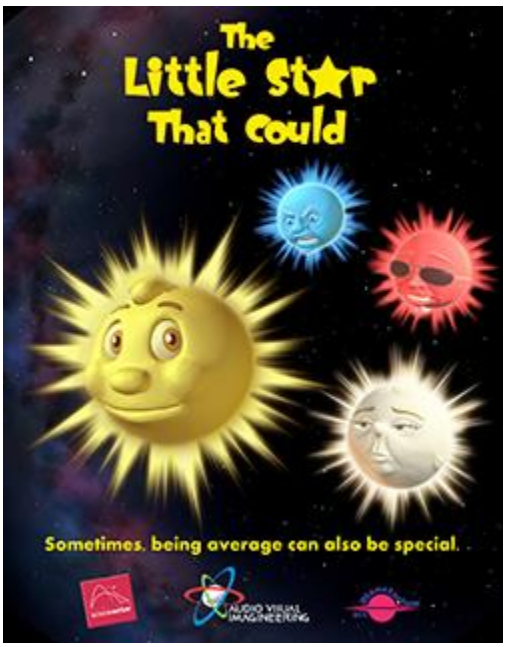
Caption: This illustration shows how the summer constellations trace a path across the Milky Way. To get the best views, head out to the darkest sky you can find. Credit: NASA/JPL-Caltech

Observatories and Planetarium

CSI Centennial Observatory / Faulkner Planetarium Herrett Center

Event	Place	Date	Time	Admission
Summer Solar Session #13	Centennial Observatory	Wednesday, August 29th, 2018	1:30 to 3:30 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, September 8th, 2018	8:30 PM to midnight	FREE
Sidewalk Astronomy Night	Twin Falls Downtown Commons, corner of Main Ave. and Hansen St.	Friday, September 14th, 2018	8:30 to 10:30 PM	FREE

College of Southern Idaho Campus Twin Falls, ID
Faulkner Planetarium / Show Times
http://herrett.csi.edu/astronomy/planetarium/showtimes.asp



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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.