

Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

www.mvastro.org

Membership Meeting

Saturday, May 13th 2017
7:00pm at the
Herrett Center for Arts & Science
College of Southern Idaho.
Public Star Party Follows at the
Centennial Observatory

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Magic Valley Astronomical Society is a
member of the Astronomical League



M-51 imaged by
Rick Widmer &
Ken Thomason
Herrett Telescope
Shotwell Camera

President's Message

Colleagues,

With approach of May, with the prospect of warmer temperatures and clearer skies, comes the promise of more opportunities to get the telescopes. As of this writing, many of you were out at the MVAS Star Party in late April at the Jerome Gun Club, and more were at Astronomy Day at the Herrett Center the following week. So far, the Spring season of astronomy is getting off to a great start.

We hope to keep the momentum going for the May meeting. Our guest speaker is Dr. Elizabeth Cartwright of Idaho State University, whose talk, "Exploring Celestial Mythologies," will take a look at the Native American versions of constellations, especially of those in Idaho.

Here's Cartwright's bio –

Dr. Cartwright is a medical anthropologist whose work focuses on structural vulnerability, environmental health threats (fracking, pesticides, and Chagas disease) and health among immigrant and ethnic populations. Cartwright's current work includes a multi-faceted research project studying the effects of development on rural communities in the highlands of Peru near Machu Picchu. Her community based research projects are carried out by integrating community members in all aspects of the research process, from defining the research question to designing the project and gathering data. Community members are also involved in data analysis, writing up and publishing results and presenting the research projects at professional and community meetings. Cartwright teaches visual anthropology, ethnographic filmmaking, Global Health, and many other courses for the Department of Anthropology at ISU.




Dr. Cartwright will speak to us at 7 p.m. in the Rick Allen Room, Saturday, May 13. We look forward to seeing you there.

In addition, our next MVAS Star Party will be Friday, May 26th. The site is yet to be determined.

Until then,
Clear Views,

Rob Mayer

Calendar for May

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|--|---|-----|---|---|--|---|
| | 1 | 2 | 3 First Quarter 55% Visible ↑  | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 Full Moon 100% Visible Age: 14.4 Days Flower Moon  | 11 | 12 | 13 MVAS Meeting at 7:00pm at the Herrett Center Public Star Party Centennial Obs. |
| 14 Mother's Day  | 15 | 16 | 17 | 18 | 19 Last Quarter Visible 46% ↓ Age: 22.6 Days  | 20 |
| 21 | 22 | 23 | 24 | 25 New Moon Lunation 1166 1% Visible ↓ Age: 29.15 Day  | 26 | 27 |
| 28 | 29 Memorial Day  | 30 | 31 | | | |

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

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Be Safe – Get Out There – Explore Your Universe

Celestial Calendar for May

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

- 5/1** May Day or Beltane, a cross-quarter day; Mars (heliocentric longitude 83.1 degrees) and Saturn (heliocentric longitude 263.1 degrees) are at heliocentric opposition at 7:00; the Moon is 9.7 degrees south of the first-magnitude star Pollux (Alpha Geminorum)
- 5/2** Mercury is stationary in right ascension at 14:00; the Moon is 3.3 degrees south of the bright open star cluster M44 (the Beehive Cluster or Praesepe) in Cancer at 18:00
- 5/3** Lunar X (also known as the Werner or Purbach Cross), an X-shaped illumination effect involving various rims and ridges between the craters La Caille, Blanchinus, and Purbach, is predicted to begin at 10:10
- 5/4** The Moon is 0.51 degree north-northeast of the first-magnitude star Regulus (Alpha Leonis); the Moon is at the ascending node (longitude 150.5°) at 10:44
- 5/5** The Martian vernal equinox occurs today; Mars (magnitude +1.6) is 6.2 degrees north of the first-magnitude star Aldebaran (Alpha Tauri) at 22:00
- 5/6** The peak of the Eta Aquarid meteor shower (20 per hour for northern hemisphere observers) occurs at 2:00; Mercury is at aphelion (0.4667 astronomical units from the Sun) at 14:00
- 5/7** Jupiter is 2.0 degrees south of the Moon at 21:00; Mercury is 2.0 degrees south of Uranus at 23:00
- 5/8** Asteroid 3 Juno is stationary in Aquila at 8:00
- 5/9** Venus is at descending node at 7:00
- 5/10** Uranus (magnitude +5.9) is 0.65 degree south-southeast of the asteroid 20 Massalia (magnitude +11.7) at 22:00
- 5/12** A double Galilean satellite shadow transit begins at 1:59; the Moon is 9.5 degrees north of Antares at 13:00; the Moon is at apogee, subtending 29' 25" from a distance of 406,210 kilometers (252,407 miles), at 23:51
- 5/13** The equation of time equals 3.65 minutes at 22:00
- 5/14** The Sun enters Taurus (ecliptic longitude 53.45 degrees) at 1:00
- 5/15** A double Galilean satellite shadow transit begins at 14:56
- 5/17** Mercury is at greatest western elongation (26 degrees) at 23:00
- 5/19** A double Galilean satellite shadow transit begins at 3:54; the Curtiss Cross, an X-shaped illumination effect located between the craters Parry and Gambart, is predicted to be at a midpoint at 13:17
- 5/20** Neptune 0.46 degree north of the Moon), with an occultation occurring in the Maldives, Madagascar, southern Africa, and the Falkland Islands, at 6:00
- 5/22** Venus is 2.3 degrees north-northwest of the Moon at 14:00; a double Galilean satellite shadow transit begins at 16:50
- 5/23** Uranus is 3.7 north-northwest of the Moon at 7:00; asteroid 8 Flora is 0.25 degree north of the Moon at 11:00
- 5/24** Mercury is 1.5 degrees north-northwest of the Moon at 2:00
- 5/26** The Moon is at perigee, subtending 33' 27" from a distance of 357,210 kilometers (221,958 miles), at 1:21; a double Galilean satellite shadow transit begins at 5:47; Mercury is at its greatest latitude south of the ecliptic plane (-7.0 degrees) at 20:00
- 5/27** Mars is 5.3 degrees north of the Moon at 3:00; the Moon is 5.0 degrees south of the bright open star cluster M35 in Gemini at 15:00
- 5/28** A double Galilean satellite shadow transit begins at 0:16
- 5/29** A double Galilean satellite shadow transit begins at 18:54
- 5/30** The Moon is 3.0 degrees south of M44 at 1:00
- 5/31** The Moon at ascending node (longitude 147.6 degrees) at 11:58; the Moon 0.26 degree south of Regulus.

Nicolas Lacaille (1713-1762), Joseph Lockyer (1836-1920), Williamina Fleming (1857-1911), and Frank Drake (1930) were born this month.

The German astronomers Gottfried and Maria Magarethe Kirch discovered the bright globular cluster M5 on May 5, 1702. On May 1, 1759, the English amateur astronomers John Bevis and Nicholas Munckley observed Comet Halley on its first predicted return. The Italian astronomer Annibale de Gasparis discovered asteroid 14 Irene on May 19, 1851. Asteroid 14 Irene was discovered on May 19, 1851 by the English astronomer John Russell Hind. The German astronomer Robert Luther discovered asteroid 26 Proserpina on May 6, 1853. The Australian astronomer John Tebbutt discovered the Great Comet of 1861 on May 13. The English astronomer Norman Pogson discovered asteroid 80 Sappho on May 2, 1864. Norman Pogson discovered asteroid 87 Sylvia on May 16, 1866. The 40-inch Clark refractor at the Yerkes Observatory saw first light on May 21, 1897. The Griffith Observatory opened to the public on May 14, 1935. Nereid, Neptune's third-largest satellite, was discovered on May 1, 1949 by the Dutch-American astronomer Gerard Kuiper.

The Sun, the Moon, & the Planets



The Moon is 4.5 days old, is illuminated 27.0%, subtends 32.9 arc minutes, and is located in Gemini on May 1st at 0:00 UT. The Moon is at its greatest northern declination on May 28th (+19.4 degrees). The Moon is at its greatest southern declination on May 15th (-19.3 degrees). Longitudinal libration is at maximum (+6.8 degrees) on May 4th and at minimum (-7.9 degrees) on May 20th. Latitudinal libration is at maximum (+6.5 degrees) on May 25th and at minimum (-6.6 degrees) on May 12th. New Moon occurs on May 25th. The year's shortest lunar month, lasting 29 days 6 hours and 46 minutes, begins on that day. Large tides will take place for a few days after New Moon. The Moon occults Regulus twice this month from certain parts of the world.

The Sun is located in Aries on May 1st. It enters Taurus on May 14th.

In the evening, Mars is in the northeast and Jupiter in the southeast. Jupiter is located in the southwest and Saturn in the southeast at midnight. Mercury and Venus can be seen in the east, Saturn in the southwest, Uranus in the east, and Neptune in the southeast at dawn.

Mercury, Venus, and Uranus are all located in Pisces as May begins.

Mercury is at aphelion on May 6th, is at greatest western elongation on May 17th, and is at greatest heliocentric latitude south on May 26th. The speediest planet will be low in the eastern sky prior to sunrise for northern hemisphere observers and will be more easily visible at the end of the month, when it brightens to magnitude -0.3.

During May, **Venus** shines prominently in the dawn sky. It decreases in angular diameter from 37.8 arc minutes to 24.8 arc minutes but increases in illumination from 27% to 48% during the course of the month. As the sun rises in late May, Venus will reach an altitude of about 23 degrees for observers at 40 degrees north. The brightest planet is at the descending node on May 9th. On May 22nd, Venus lies 2.3 degrees north-northwest of the Moon in the morning sky.

May is the last month of this year when **Mars** will be visible. It subtends a mere three arc seconds and shines approximately one half-magnitude fainter than the class K5 giant star Aldebaran this month. The Red Planet passes some six degrees north of Aldebaran between May 5th and May 7th and lies about the same distance to the upper right of a young crescent Moon on the evening of May 26th.

Jupiter decreases in brightness from magnitude -2.4 to magnitude -2.3 and shrinks in angular diameter from 43.5 arc seconds to 40.8 arc seconds during May. Jupiter culminates after 11:00 p.m. local daylight time on May 1st and just after 9:00 p.m. local daylight time on May 31st. The largest gas giant continues to retrograde through Virgo, heading towards the binary star Porrima (Gamma Virginis). Browse http://www.projectpluto.com/jeve_grs.htm in order to determine transit times of Jupiter's central meridian by the Great Red Spot (GRS).

Saturn shines at magnitude +0.2 and has an apparent equatorial diameter of 18.1 arc seconds. Its rings are inclined by 26 degrees and subtend 41 arc seconds. In early May, Saturn transits the meridian at about 4:00 a.m. It lies about five degrees to the west of M20 (the Trifid Nebula) and the open star cluster M21 and five degrees southwest of the open star cluster M23. The Ringed Planet's retrograde motion causes it to depart Sagittarius and enter Ophiuchus on May 18th. Eighth-magnitude Titan is positioned north of the planet on May 7th and May 23rd and south of it on May 15th and May 31st. Saturn's variably bright moon Iapetus shines at tenth magnitude when it is located nine arc minutes from Saturn at western elongation on May 9th. As it passes two arc minutes north of Saturn on May 29th, Iapetus drops in brightness to eleventh magnitude, since its dark hemisphere is then facing Earthward.

Uranus is lost in morning twilight until late May. On the morning of May 31st, Venus and Uranus are separated by about three degrees.

Neptune passes nine arc minutes south of the sixth-magnitude star 81 Aquarii, which is located 2.2 degrees east-northeast of the fourth-magnitude star Lambda Aquarii, on May 14th. Neptune lies within 20 arc minutes of 81 Aquarii for the entire month.

Pluto lies in northern Sagittarius and transits the meridian before dawn.

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

Asteroids



Asteroid 4 Vesta travels southeastward through Cancer this month. The eighth-magnitude minor planet passes just north of the sixth-magnitude star Lambda Cancri on April 8th and April 9th, just south of the sixth-magnitude star Upsilon Cancri on April 16th, and a few degrees north of the bright open cluster M44 on April 21st. Asteroids brighter than magnitude +11.0 that reach opposition this month include 30 Urania on May 6th, 52 Europa on May 12th, 196 Philomela on May 16th, and 27 Euterpe on May 25th. Information on asteroid occultations taking place this month is available at http://www.asteroidoccultation.com/2017_05_si.htm

Comets



Periodic Comet 41P/Tuttle-Giacobini-Kresák is shown moving through a field of faint galaxies in the bowl of the Big Dipper on March 24, 2017 (credit: NASA)

Comet 41P/Tuttle-Giacobini-Kresák heads southward through Hercules and Lyra in May. The periodic comet passes very close to the fourth-magnitude star Kappa Lyrae on May 4th.

Visit <http://cometchasing.skyhound.com/> and <http://www.aerith.net/comet/weekly/current.html> for information on comets visible this month.

Meteors



The broad peak of the Eta Aquarid meteor shower centered on May 6th is compromised by a waxing gibbous Moon. The observing window for those living at 40 degrees north is 2.25 hours. Eta Aquarid meteors are debris from the famous periodic comet 1P/Halley. See <http://www.imo.net/2017-eta-aquariids-predictions-and-observations/> for additional information.

Carbon Star



Notable carbon star for May: SS Virginis: Right Ascension: 12^h 25^m 14.3949^s / Declination: +00° 46' 10.921"

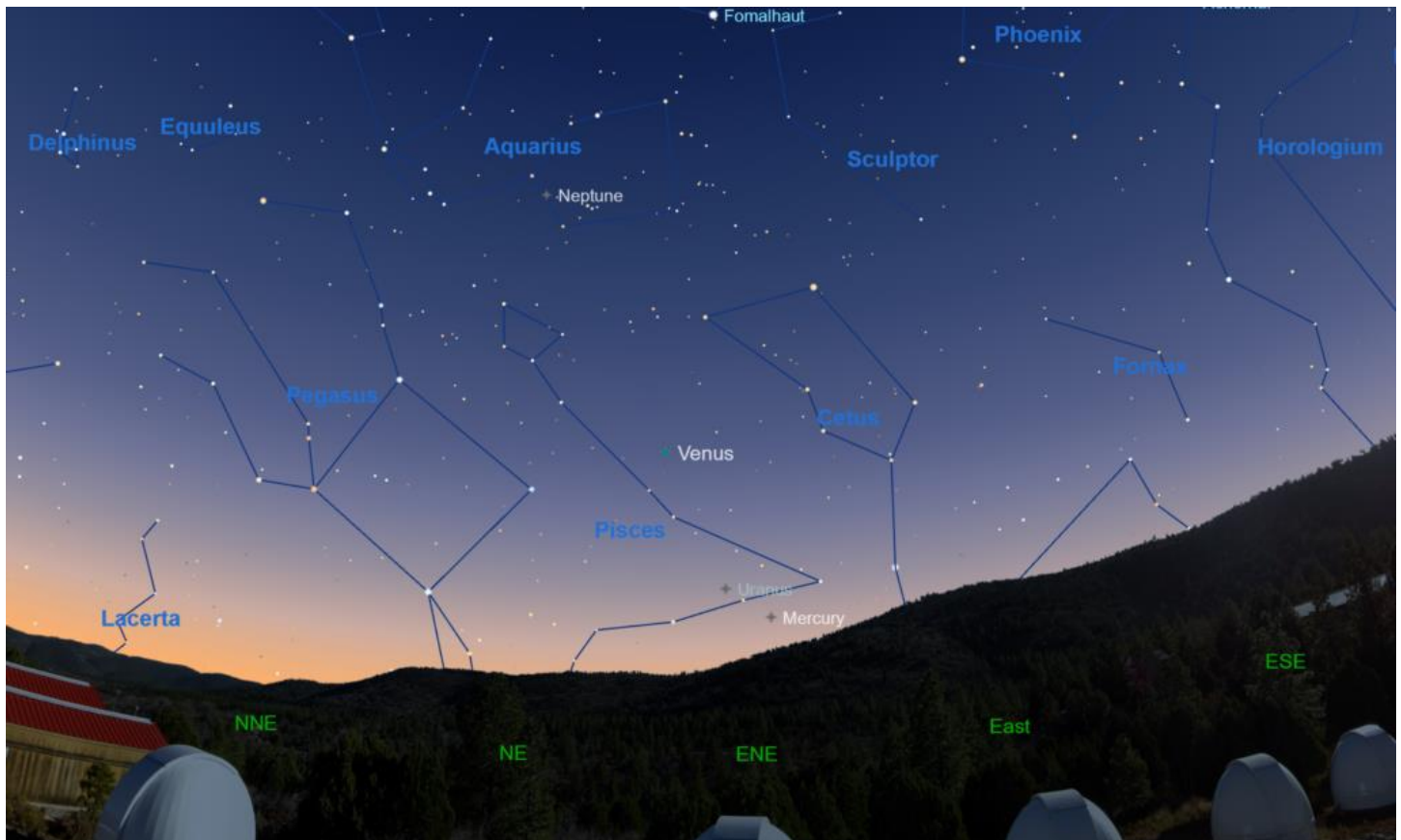
ISS



Information on Iridium flares and passes of the ISS, the Tiangong-1, the USAF's X-37B, the HST, and other satellites can be found at <http://www.heavens-above.com/>

Current information on solar system celestial bodies is posted at <http://www.curtrenz.com/astronomy.html> and <http://nineplanets.org/>

A free star map for May can be downloaded at: <http://www.skymaps.com/downloads.html> and <http://www.telescope.com/content.jsp?pageName=Monthly-Star-Chart>



Mercury and Venus as seen in the eastern sky about 90 minutes before sunrise on May 17, 2017 in the mid-latitudes of the southern hemisphere.

The Deep Sky



One hundred and sixty-five deep-sky objects for May: NGC 5248 (Bootes); M3, M51, M63, M94, M106, NGC 4111, NGC 4138, NGC 4143, NGC 4151, NGC 4214, NGC 4217, NGC 4244, NGC 4346, NGC 4369, NGC 4449, NGC 4485, NGC 4490, NGC 4618, NGC 4631, NGC 4656, NGC 4868, NGC 5005, NGC 5033, NGC 5297, NGC 5353, NGC 5354, Up 1 (Canes Venatici); Mel 111, M53, M64, M85, M88, M91, M98, M99, M100, NGC 4064, NGC 4150, NGC 4203, NGC 4212, NGC 4251, NGC 4274, NGC 4278, NGC 4293, NGC 4298, NGC 4302, NGC 4314, NGC 4350, NGC 4414, NGC 4419, NGC 4448, NGC 4450, NGC 4459, NGC 4473, NGC 4474, NGC 4494, NGC 4559, NGC 4565, NGC 4651, NGC 4689, NGC 4710, NGC 4725, NGC 4874, NGC 5053 (Coma Berenices); NGC 4027, NGC 4038-9, NGC 4361 (Corvus); M68, M83, NGC 4105, NGC 4106, NGC 5061, NGC 5101, NGC 5135 (Hydra); M40, NGC 4036, NGC 4041, NGC 4051, NGC 4062, NGC 4085, NGC 4088, NGC 4096, NGC 4100, NGC 4144, NGC 4157, NGC 4605, NGC 5308, NGC 5322 (Ursa Major); M49, M58, M59, M60, M61, M84, M86, M87, M89, M90, M104, NGC 4030, NGC 4073, NGC 4168, NGC 4179, NGC 4206, NGC 4215, NGC 4216, NGC 4224, NGC 4235, NGC 4260, NGC 4261, NGC 4267, NGC 4281, NGC 4339, NGC 4343, NGC 4365, NGC 4371, NGC 4378, NGC 4380, NGC 4387, NGC 4388, NGC 4402, NGC 4429, NGC 4435, NGC 4438, NGC 4517, NGC 4526, NGC 4535, NGC 4536, NGC 4546, NGC 4550, NGC 4551, NGC 4567, NGC 4568, NGC 4570, NGC 4593, NGC 4596, NGC 4636, NGC 4638, NGC 4639, NGC 4643, NGC 4654, NGC 4666, NGC 4697, NGC 4698, NGC 4699, NGC 4753, NGC 4754, NGC 4760, NGC 4762, NGC 4866, NGC 4900, NGC 4958, NGC 5044, NGC 5054, NGC 5068, NGC 5077, NGC 5084, NGC 5087, NGC 5147, NGC 5170, NGC 5247, NGC 5363, NGC 5364 (Virgo)

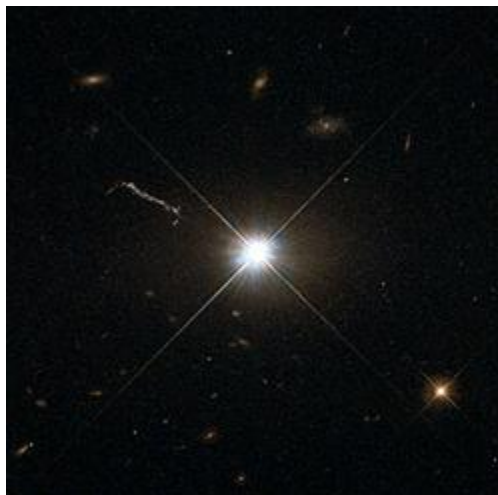
Top ten deep-sky objects for May: M3, M51, M63, M64, M83, M87, M104, M106, NGC 4449, NGC 4565

Top ten deep-sky binocular objects for May: M3, M51, M63, M64, M84, M86, M87, M104, M106, Mel 111

Challenge deep-sky object for May: 3C 273 (Virgo) is a quasar located in the constellation Virgo. It was the first quasar ever to be identified. It is the optically brightest quasar in the sky, and one of the closest with a redshift, z , of 0.158. A luminosity distance of $DL = 749$ mega-parsecs may be calculated from z . It is also one of the most luminous quasars known, with an absolute magnitude of -26.7 , meaning that if it were only as distant as Pollux it would appear nearly as bright in the sky as the Sun. Since the sun's absolute magnitude is 4.83, it means that the quasar is over 4 trillion times more luminous than the Sun at visible wavelengths. The mass of its central black hole has been measured to be 886 ± 187 million solar masses through broad emission-line reverberation mapping.

The objects listed above are located between 12:00 and 14:00 hours of right ascension.

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



Quasar 3C 273 taken by [Hubble Space Telescope](#)

Cosmic Challenge

The Antennae May 2017

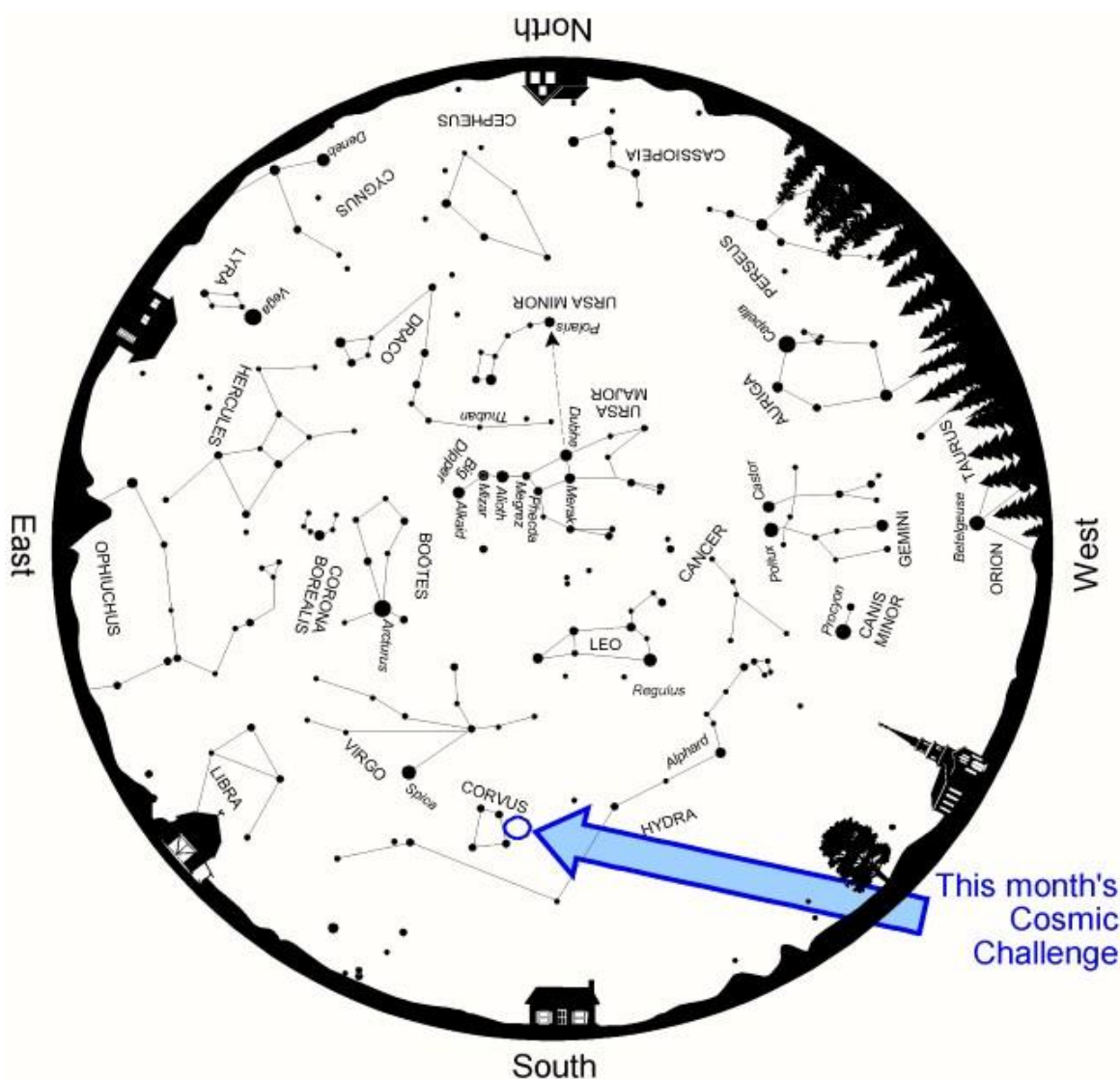
| Target | Type | RA | DEC | Constellation | Magnitude | Size |
|--------------|-------------|---------|----------|---------------|-----------|-------|
| The Antennae | Galaxy pair | 12 01.9 | -18 52.8 | Corvus | ~10.3 | 5'x2' |

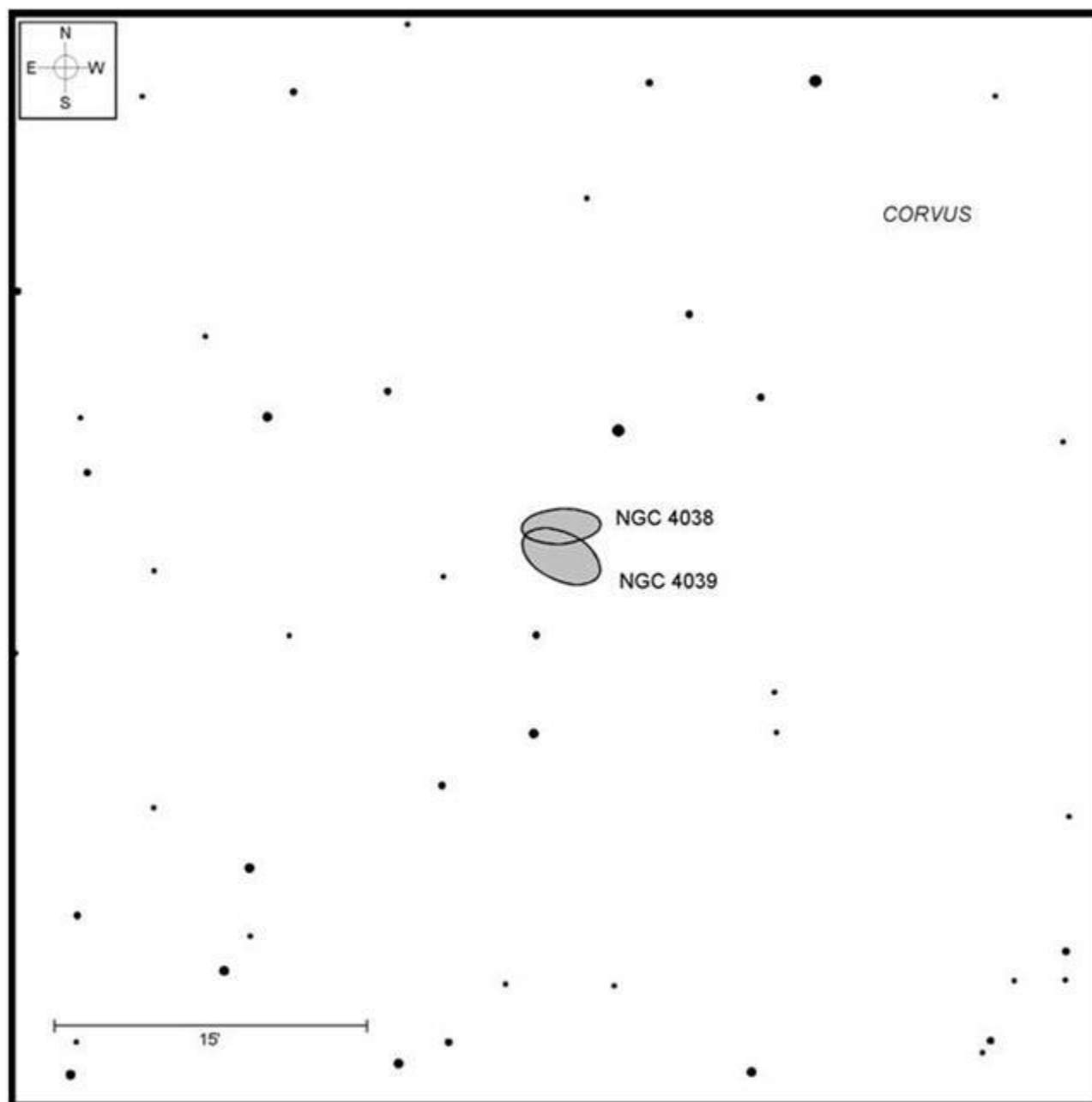
Although the four brightest stars in Corvus, the Crow, shine no more intensely than magnitude 2.6, the constellation's distinctive trapezoidal pattern in an otherwise star-poor region of the spring sky lets it stand out surprisingly well even in moderate light pollution.

We will put that to good use here as we probe for one of the best known pairs of interacting galaxies in the sky: NGC 4038 and NGC 4039, the "Antennae."

Spring star map showing the location of this month's Cosmic Challenge.

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

Here, we find two galaxies in a celestial death match of tug o' war. Each is being yanked apart by the gravity of the other. As time goes on, the momentum built up lets each galaxy escape the other's grip, only to be inexorably drawn back together in the distant future to continue their head-to-head struggle. Although there is slim chance of individual stars colliding because of their wide spacing, each galaxy will eventually be distorted beyond recognition.

In the photo below, from the archives of the Hubble Space Telescope, we see clouds of bright pink and red ionized hydrogen surrounding blue star-forming regions intertwined with dark patches of dust. The rate of star formation is so high that the Antennae Galaxies are said to be "starburst galaxies." This won't last forever, however. Their struggle will continue, wrapping themselves around one another, until eventually they have morphed into a single large elliptical galaxy.



Above: This image taken by the Hubble Space Telescope uses visible and near-infrared observations from HST's Wide Field Camera 3 (WFC3), along with the Advanced Camera for Surveys (ACS). **Credit:** ESA/Hubble & NASA

Keep in mind that as we gaze toward the Antennae, we are in a sense looking at the future of our Milky Way. In some 4 billion years, just as our Sun is about to run out of fusible hydrogen in its core, the Milky Way will collide with M31, the Andromeda Galaxy. Like the Antennae, the two will spar back and forth, eventually merging into a single system that many have already christened *Milkomeda*.

Trying to describe the unusual appearance of this intertwined pair has pushed the imaginations of observers to the limits. The most common nickname applied to the tight twosome is the Antennae, owing to the two long, contrail-like filaments extending from both in wider field photographs. These "antennae" are the result of tidal forces as the two galaxies graze one another. Others prefer the monikers Ring-Tail or Rat-Tail galaxies. Visually, the pair remind many of a comma, a shrimp, or even a tadpole when view through medium- and large-aperture backyard telescopes. The table below lists individual specifics.

| Target | Type | RA | DEC | Magnitude | Size |
|----------|--------|---------|----------|-----------|-----------|
| NGC 4038 | Galaxy | 12 01.9 | -18 52.0 | 10.3 | 3.7'x1.7' |
| NGC 4039 | Galaxy | 12 01.9 | -18 53.5 | 11.2 | 4.0'x2.2' |

To zero in on the Antennae, we can use two of the stars in the Crow's body. Trace a line from the northeastern star, Algorab [Delta (δ) Corvi], to the northwestern star, Gienah [Gamma (γ) Corvi], and continue an equal distance to the southwest. As a reference, halfway along you'll pass a right triangle of 7th-magnitude stars. Continue in the same direction and you should find NGC 4038 and NGC 4039 set between two 9th-magnitude stars. This puts them just under a degree northeast of 5th-magnitude 31 Corvi.

At first glance, all you may see is a single 10th-magnitude glow. That's NGC 4038. What's so special about a description that could fit thousands of galaxies? Nothing until you take a closer look. At 100x or more, it should become clear that there is something different going on here. Look carefully and the amorphous glow will transform into a hook-shaped image with a faint extension coming off toward the south. This elongation is NGC 4039, and glows dimly at about 11th magnitude. A dark wedge intruding from the west separates the galaxies, as portrayed in my sketch here.



Above: The Antennae as sketched through the author's 8-inch (20cm) reflector.

Given rural skies that are free of horizon-hugging haze, neither galaxy appears uniform, but instead looks clumpy. That's not an illusion. You are seeing some of the consequences of the merging process, huge starburst areas where new suns are coming into being as we watch from afar. Knots along the rim of NGC 4038, the northern galaxy in the pair, are the most obvious, although some very subtle mottling is also evident in NGC 4039.

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!

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NOAA's Joint Polar Satellite System (JPSS) to monitor Earth as never before

By Ethan Siegel

Later this year, an ambitious new Earth-monitoring satellite will launch into a polar orbit around our planet. The new satellite—called JPSS-1—is a collaboration between NASA and NOAA. It is part of a mission called the Joint Polar Satellite System, or JPSS.

At a destination altitude of only 824 km, it will complete an orbit around Earth in just 101 minutes, collecting extraordinarily high-resolution imagery of our surface, oceans and atmosphere. It will obtain full-planet coverage every 12 hours using five separate, independent instruments. This approach enables near-continuous monitoring of a huge variety of weather and climate phenomena.

JPSS-1 will improve the prediction of severe weather events and will help advance early warning systems. It will also be indispensable for long-term climate monitoring, as it will track global rainfall, drought conditions and ocean properties.

The five independent instruments on board are the main assets of this mission:

- The Cross-track Infrared Sounder (CrIS) will detail the atmosphere's 3D structure, measuring water vapor and temperature in over 1,000 infrared spectral channels. It will enable accurate weather forecasting up to seven days in advance of any major weather events.
- The Advanced Technology Microwave Sounder (ATMS) adds 22 microwave channels to CrIS's measurements, improving temperature and moisture readings.
- Taking visible and infrared images of Earth's surface at 750 meter resolution, the Visible Infrared Imaging Radiometer Suite (VIIRS) instrument will enable monitoring of weather patterns, fires, sea temperatures, light pollution, and ocean color observations at unprecedented resolutions.
- The Ozone Mapping and Profiler Suite (OMPS) will measure how ozone concentration varies with altitude and in time over every location on Earth's surface. This can help us understand how UV light penetrates the various layers of Earth's atmosphere.
- The Clouds and the Earth's Radiant System (CERES) instrument will quantify the effect of clouds on Earth's energy balance, measuring solar reflectance and Earth's radiance. It will greatly reduce one of the largest sources of uncertainty in climate modeling.

The information from this satellite will be important for emergency responders, airline pilots, cargo ships, farmers and coastal residents, and many others. Long and short term weather monitoring will be greatly enhanced by JPSS-1 and the rest of the upcoming satellites in the JPSS system.

Want to teach kids about polar and geostationary orbits? Go to the NASA Space Place: <https://spaceplace.nasa.gov/geo-orbits/>



Caption: Ball and Raytheon technicians integrate the VIIRS Optical and Electrical Modules onto the JPSS-1 spacecraft in 2015. The spacecraft will be ready for launch later this year. Image Credit: Ball Aerospace & Technologies Corp.

Centennial Observatory and Faulkner Planetarium



CSI Centennial Observatory / Faulkner Planetarium Herrett Center
College of Southern Idaho Campus Twin Falls, ID

| Event | Place | Date | Time | Admission |
|-------------------------|------------------------|--|---------------------|-----------|
| Monthly Free Star Party | Centennial Observatory | Saturday, May 13 th , 2017 | 9:30 PM to midnight | FREE |
| Summer Solar Session #1 | Centennial Observatory | Wednesday, May 31 st , 2017 | 1:30 to 3:30 PM | FREE |

Faulkner Planetarium / Show Times

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

[Now Showing](#)



About the Magic Valley Astronomical Society

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

The Magic Valley Astronomical Society (MVAS) was founded in 1976. The Society is a non-profit [501(c) 3] educational and scientific organization dedicated to bringing together people with an interest in astronomy. In partnership with the Centennial Observatory, Herrett Center, College of Southern Idaho - Twin Falls; we hold regularly scheduled monthly meetings and observation sessions, at which we share information on current astronomical events, tools and techniques for observation, astrophotography, astronomical computer software, and other topics concerning general astronomy. Members enthusiastically share their telescopes and knowledge of the night sky with all who are interested. In addition to our monthly public star parties we hold members only star parties at various locations throughout the Magic Valley.

MVAS promotes the education of astronomy and the exploration of the night sky along with safe solar observing through our public outreach programs. We provide two types of outreach; public star parties and events open to anyone interested in astronomy, and outreach programs for individual groups and organizations (e.g. schools, churches, scout troops, company events, etc.), setting up at your location. All of our outreach programs are provided by MVAS volunteers at no cost. However, MVAS will gladly accept donations. Donations enable us to continue and improve our public outreach programs.

Membership is not just about personal benefits. Your membership dues support the work that the Magic Valley Astronomical Society does in the community to promote the enjoyment and science of astronomy. Speakers, public star parties, classes and support for astronomy in schoolrooms, and outreach programs just to name a few of the programs that your membership dues support.

Annual Membership dues will be:

\$20.00 for individuals, families, \$10.00 for students.

Contact Treasurer Jim Tubbs for dues information via e-mail: jtubbs015@msn.com

Donations to our club are always welcome and are even tax deductible. Please contact a board member for details.

Membership Benefits:

Lending Telescopes: The society currently has three telescopes for loan and would gladly accept others please contact President Robert Mayer, for more information on these and other benefits.



Telescopes are an individual thing and not practical for public use. However, everyone should have the experience of a good look at the moon for at least 5 minutes in their life time. It is a dimension and feeling that is unexplainable. Pictures or TV can't give this feeling, awareness, or experience of true dimension. A person will not forget seeing our closest neighbor, the moon. Norman Herrett in a letter to Dr. J. L. Taylor, president of the College of Southern Idaho, Twin Falls, ID, USA circa 1980.