

# *Snake River Skies*

*The Newsletter of the Magic Valley Astronomical Society*

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

## **Membership Meeting**

Saturday, February 11<sup>th</sup> 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 snow, ice, and flooding, getting out and looking at the sky can be a challenge. With that in mind, MVAS is going to play it safe. For this month's meeting, we're going to hold our annual yearly planetarium visit. For Saturday, Feb. 11, we'll be meeting at the Faulkner Planetarium at 7 p.m.

The show is "The Secret Lives of Stars," and promises to be enjoyable. My son and I checked out the Pluto show last year, and we were clearly impressed with that one, so we can only imagine what this has to offer. Tickets are \$6.

Until then,  
Clear Views,  
Rob Mayer

## Calendar for January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2 Groundhog Day 	3	4 First Quarter 54% Visible Age: 7-days 
5	6	7	8	9	10	11 MVAS Meeting at 7:00pm at the Herrett Center Public Star Party Centennial Obs.
12 Lincoln's Birthday 	13	14 Valentine's Day  IC-1805	15	16	17	18
19	20 President's Day	21	22 Washington's Birthday 	23	24	25
26 New Moon Lunation 1164 1% Visible 	27	28				

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

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## Celestial Calendar

- 2/1 Mars is 2.2 degrees north-northwest of the Moon at 3:00; Jupiter (magnitude +2.2) is 3.6 degrees north of the first-magnitude star Spica (magnitude +1.0)
- 2/2 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 today; Uranus is 3 degrees north of the Moon
- 2/3 Asteroid 1 Ceres (magnitude +8.9) is 1 degree south of the Moon in Pisces. The Lunar X (the Purbach or Werner Cross), an X-shaped Clair-obscure illumination effect involving various rims and ridges between the craters La Caille, Blanchinus, and Purbach, is predicted to begin at 20:46
- 2/5 The Moon is 9.3 degrees south-southeast of the bright open cluster M45 (the Pleiades or Subaru) the Moon is 0.2 degree north of the first-magnitude star Aldebaran (Alpha Tauri),
- 2/6 The Moon is at perigee, subtending 32' 24" from a distance of 368,816 kilometers (229,172 miles) Jupiter stationary in right ascension.
- 2/7 The Moon is 5.5 degrees south of the bright open cluster M35 in Gemini. Mercury is at aphelion (0.4667 astronomical units from the Sun).
- 2/9 The Moon is 10.0 degrees south of the first-magnitude star Pollux (Beta Geminorum); the Moon is 3.6 degrees south of the bright open cluster M44 (the Beehive Cluster or Praesepe) in Cancer.
- 2/15 Jupiter is 2.7 degrees south of the Moon
- 2/16 The Sun enters the constellation of Aquarius (ecliptic longitude 327.9 degrees)
- 2/17 Jupiter at aphelion (5.4565 astronomical units from the Sun) Venus (magnitude -4.8) is at greatest brilliancy
- 2/18 Asteroid 14 Irene (magnitude +8.5) is at opposition at 19:00; the Moon is at apogee, subtending 29' 33" from a distance of 404,376 kilometers (251,268 miles).
- 2/19 The Curtiss Cross, an X-shaped Clair-obscure illumination effect located between the craters Parry and Gambart, is predicted to be at a midpoint at 23:01; the Moon is 9.8 degrees north of the first-magnitude star Antares (Alpha Scorpii).
- 2/20 Asteroid 15 Eunomia (magnitude +8.9) is at opposition at 11:00; Venus is at perihelion (0.7184 astronomical units from the Sun).
- 2/21 Saturn is 3.6 degrees south of the Moon at 0:00; the middle of the eclipse season (the Sun is at same ecliptic longitude as Moon's descending node, 333.5 degrees).
- 2/22 Asteroid 9 Metis (magnitude +8.8) is at opposition.
- 2/23 Jupiter is 4.0 degrees north of Spica.
- 2/26 The Moon is at the descending node (ecliptic longitude 333.4 degrees); Neptune is 0.14 degree south-southwest of the Moon.
- 2/27 Mars is at the ascending node; Mars (magnitude +1.3) is 0.6 degree north of Uranus (magnitude +5.9) at 8:00; Mercury is at its greatest latitude south of the ecliptic plane (-7.0 degrees)
- 2/28 Venus is 10 degrees north of Moon

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

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. Johann Bode discovered the globular cluster M53 in Coma Berenices on February 3, 1775. 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. Supernova 1987A was discovered by Ian Shelton, Oscar Duhalde, and Albert Jones on February 23, 1987. The first pulsar, PSR B1919+21, was discovered by Jocelyn Bell Burnell and Antony Hewish on February 24, 1967.

The zodiacal light should be visible in the west after evening twilight from a dark site beginning on February 13th.



Zodiacal Light By Dominic Cantin - <<http://www.pbase.com/dominiccantin>;  
CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=5068900>

## The Sun, the Moon, & the Planets



The Moon is 4.0 days old, is illuminated 17.3%, subtends 31.9', and is located in the constellation of Pisces at 0:00 UT on February 1st. A deep penumbral eclipse, number 59 of Saros 114, takes place on the evening of February 10th (February 11th UT). See the page following the Celestial Calendar.

The Moon is at apogee on February 18th and at perigee on February 6th. The Lunar X occurs on February 3rd and the Curtiss Cross on February 19th. The synodic or lunar month beginning on January 28th and ending on February 26th is 29 days 14 hours and 51 minutes in length. The Moon occults 1Ceres on February 3rd, Aldebaran on February 5th, and Regulus on February 11th. Browse <http://www.lunar-occultations.com/iota/> for information on this event and upcoming lunar occultations. Click on [http://www.calendar-12.com/moon\\_calendar/2017/february](http://www.calendar-12.com/moon_calendar/2017/february) for a February 2017 lunar calendar.

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

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

**Mercury** is present low in the morning sky for most of the month. It brightens from magnitude -0.2 to -1.2 while decreasing in apparent size from 5.6 to 4.9 arc seconds. Mercury is at aphelion on February 7th and is at greatest heliocentric latitude south on February 27th.

**Venus** becomes an increasingly larger crescent as it increases in apparent size by 15.4 arc seconds but decreases in illumination by 22% this month. On February 3rd, the brightest planet reaches a peak altitude of 40 degrees for observers at latitude 40 degrees north. Venus is at its greatest illuminated extent (i.e., maximum illuminated area in square arc seconds) on February 17th and is at perihelion on February 20th.

**Mars** decreases in apparent size from 5.1 to 4.6 arc seconds and dims to magnitude +1.3 during February. The Red Planet is in quasi-conjunction with Venus on February 1st. The two planets are separated by 5.4 degrees at the time. Mars (apparent size 4.6 arc seconds) is located within nine-tenths of a degree of Uranus (apparent size 3.4 arc seconds) from February 25th to February 27th.

**Jupiter** is stationary in right ascension and begins retrograde (westward) motion on February 6th. It is located 3.6 degrees due north of Spica on February 6th and 2.7 degrees south of the Moon on February 15th. Jupiter is at aphelion for the first time in 11.9 years on February 17th. Shadow transits by Io, Data on Galilean satellite events is available online at <http://www.shallowsky.com/jupiter/>

**Saturn** shines at magnitude +0.5 at mid-month. Its rings are inclined 27 degrees from edge-on and span 36 arc seconds. Saturn is 3.6 degrees south of the waning crescent Moon on the evening of February 20th. The Ringed Planet enters Sagittarius on February 23rd. It is situated less than four degrees from M20 (the Trifid Nebula) on February 28th. Saturn rises at approximately 2:30 a.m. local time by the end of February. For information on the satellites of Saturn, browse <http://www.skyandtelescope.com/observing/interactive-sky-watching-tools/>

**Uranus** can be found in southeastern Pisces one degree east of the fifth-magnitude star Zeta Piscium. The seventh planet lies twice that distance from Zeta Piscium by the end of the month. Uranus is located three degrees south of the waxing Moon on February 2nd. On the evening of February 26th, Mars passes 34 arc minutes north of Uranus.

**Neptune** lies 1.2 degrees southwest of the fourth-magnitude star Lambda Aquarii. It disappears from view after the first week of February.

See <http://www.curtrenz.com/uranep.html> for additional information on the two outer planets.

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

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

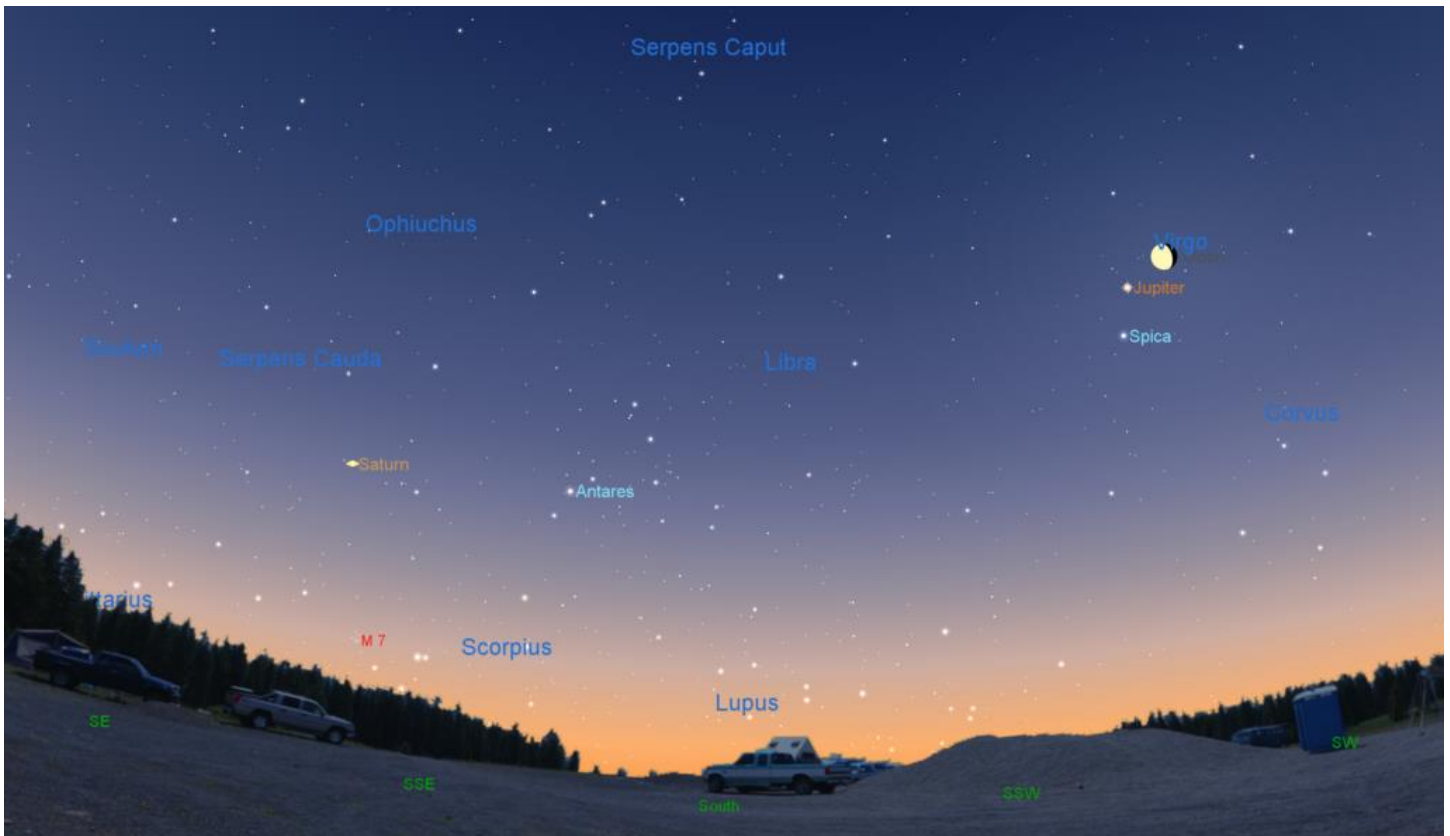
## Asteroids



During February, asteroid **4 Vesta** travels northwestward through Gemini. The eighth-magnitude asteroid is located three degrees south of the first-magnitude star Pollux at the start of the month and four degrees southwest of that star as February ends. It lies about one half of a degree northwest of the fourth-magnitude star Kappa Geminorum on February 2nd and February 3rd. Asteroids brighter than magnitude +11.0 coming to opposition this month include **82 Alkmene** on February 9th, **39 Laetitia** on February 14th, 14 Irene on February 18th, 15 **Eunomia** on February 20th, and **9 Metis** on February 22nd.



The dwarf planet Ceres lies 1 degree south of the Moon on the night and early morning of February 2-3, 2017. In this image, the two bright stars Alrischa and Torcularis Septentrionalis are about 7.5 degrees apart.



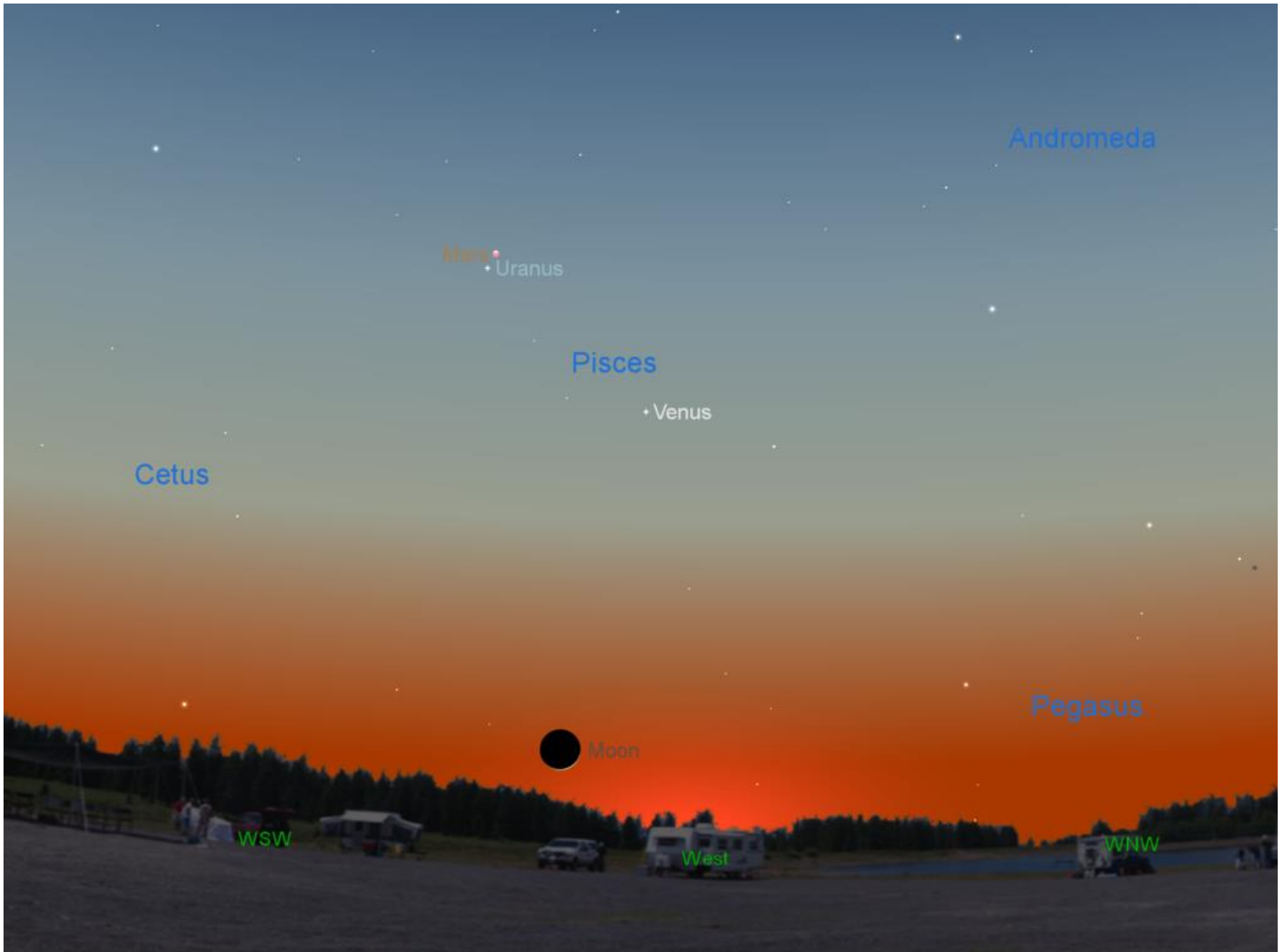
Jupiter, the star Spica, and the waning gibbous Moon (all right of center) lie in a small group on the morning of February 15, 2017 in the southern sky before sunrise. Saturn rises in the southeast, well east of the bright star Antares.



## Comets



Comet **2P/Encke** may brighten to seventh magnitude as it travels through Pisces this month. In the middle of February, the periodic comet lies less than one degree north of the fourth-magnitude star Omega Piscium. It then passes east and later south of that star. This will be the 63rd time Comet 2P/Encke has passed through the inner solar system since it was discovered to be a periodic comet in 1819. Visit <http://cometchasing.skyhound.com/> for information on Comet 2P/Encke.



Mars and Uranus lie within 0.6 degrees of each other on Feb. 26-27, 2017. Much brighter Venus and the slender crescent Moon are also visible.

## Meteors



No Meteors this month.

## Carbon Star



Notable carbon star for February: BL Orionis (Orion) HIP 30564: This magnitude 6 star seemed slightly dimmer to me than W Ori, and just a tad bit less orange color as well. I enjoyed however the star field that it was in, with 20 or so stars speckled about.



Stellarium Screen Capture of HIP 30564 / BL Orionis near center by the word nebula

## 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/>

## The Deep Sky



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

Challenge deep-sky object for February: IC 443 (Gemini) Right Ascension: 06<sup>h</sup> 17<sup>m</sup> 13 Declination: +22° 31' 05"

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

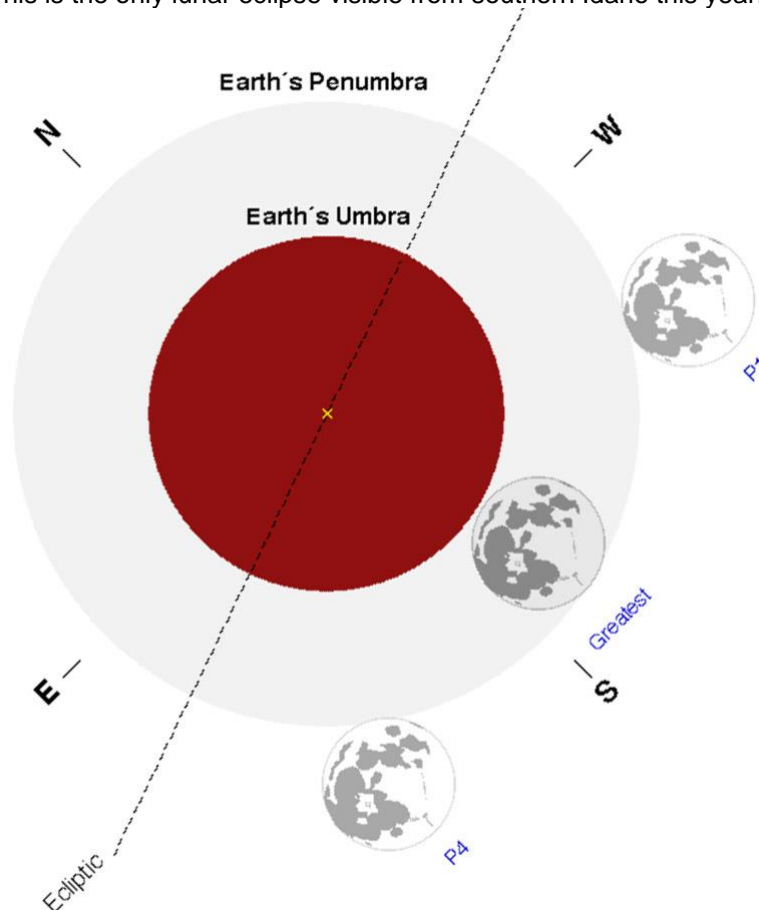


IC 443, the Jellyfish Nebula Credit NASA



# The Penumbral Lunar Eclipse of Friday, February 10<sup>th</sup>, 2017

This is the only lunar eclipse visible from southern Idaho this year.



Adapted from a [diagram by NASA](#). Note that, although the moon's orbital motion will carry it to the lower left relative to Earth's shadow, it (and the shadow) will be moving to the upper *right* (from the eastern horizon) due to Earth's rotation. Thus, for observers in the U.S., the moon will be moving higher in the sky relative to the local horizon throughout the eclipse. Eclipse timeline (all times listed are in Mountain Standard Time (UT-7 hrs.), and rise/set/twilight times are given for Twin Falls, Idaho, USA):

- 3:34 PM — **First penumbral contact (P1)**. The eclipse officially begins as the moon begins to pass into Earth's partial (penumbral) shadow, although this phase is too subtle to be noticed by the eye, and occurs while the moon is still below the eastern horizon for the Western U.S. (including Idaho).
- 5:45 PM — **Centennial Observatory opens** for telescope viewing, weather permitting. Please dress warmly! This is also the moment of greatest eclipse, when the moon is deepest in Earth's partial shadow, although the moon will still be below the local horizon.
- 6:04 PM — **Moonrise**. The moon rises in the north-northeast, with its upper left limb appearing noticeably dimmer than normal. Because the 24" telescope's minimum target elevation is 15° above the horizon, small telescopes will be deployed on the Stargazers' Deck outside the dome for viewing the moon, while the 24" telescope targets Venus, Mars, and other bright targets visible in twilight.
- 7:00 PM — **Observatory closes**. Although the eclipse is still in progress, to the eye the moon will appear completely normal (penumbral shadowing is too subtle to notice by this time).
- 7:53 PM — **Last penumbral contact (P4)**. The moon exits Earth's penumbral shadow, a transition too subtle for the eye to notice.

## Comet Campaign: Amateurs Wanted

By Marcus Woo

In a cosmic coincidence, three comets will soon be approaching Earth—and astronomers want you to help study them. This global campaign, which will begin at the end of January when the first comet is bright enough, will enlist amateur astronomers to help researchers continuously monitor how the comets change over time and, ultimately, learn what these ancient ice chunks reveal about the origins of the solar system.

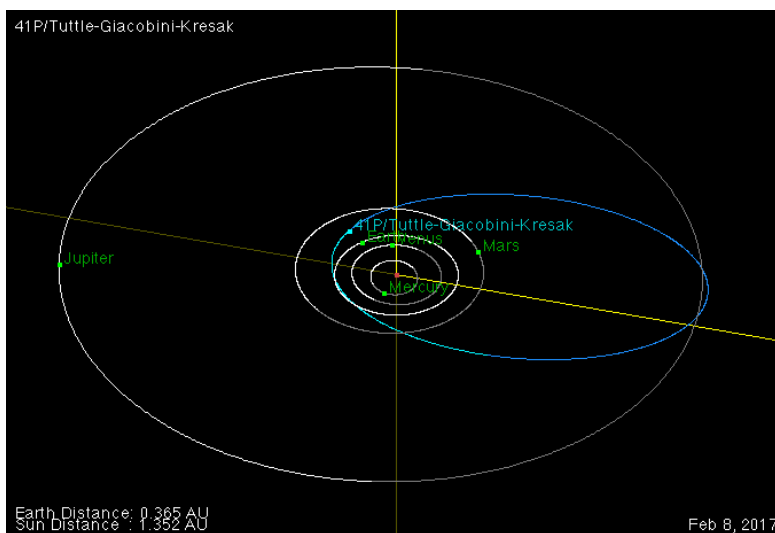
Over the last few years, spacecraft like NASA's Deep Impact/EPOXI or ESA's Rosetta (of which NASA played a part) discovered that comets are more dynamic than anyone realized. The missions found that dust and gas burst from a comet's nucleus every few days or weeks—fleeting phenomena that would have gone unnoticed if it weren't for the constant and nearby observations. But space missions are expensive, so for three upcoming cometary visits, researchers are instead recruiting the combined efforts of telescopes from around the world.

"This is a way that we hope can get the same sorts of observations: by harnessing the power of the masses from various amateurs," says Matthew Knight, an astronomer at the University of Maryland. By observing the gas and dust in the coma (the comet's atmosphere of gas and dust), and tracking outbursts, amateurs will help professional researchers measure the properties of the comet's nucleus, such as its composition, rotation speed, and how well it holds together.

The observations may also help NASA scout out future destinations. The three targets are so-called Jupiter family comets, with relatively short periods just over five years—and orbits that are accessible to spacecraft. "The better understood a comet is," Knight says, "the better NASA can plan for a mission and figure out what the environment is going to be like, and what specifications the spacecraft will need to ensure that it will be successful."

The first comet to arrive is 41P/Tuttle-Giacobini-Kresak, whose prime window runs from the end of January to the end of July. Comet 45P/Honda-Mrkos-Pajdusakova will be most visible between mid-February and mid-March. The third target, comet 46P/Wirtanen won't arrive until 2018. Still, the opportunity to observe three relatively bright comets within roughly 18 months is rare. "We're talking 20 or more years since we've had anything remotely resembling this," Knight says. "Telescope technology and our knowledge of comets are just totally different now than the last time any of these were good for observing."

For more information about how to participate in the campaign, visit <http://www.psi.edu/41P45P46P>. Want to teach kids about the anatomy of a comet? Visit NASA Space Place and use Comet on a Stick activity! <http://spaceplace.nasa.gov/comet-stick/>



An orbit diagram of comet 41P/Tuttle-Giacobini-Kresak on February 8, 2017—a day that falls during the comet's prime visibility window. The planets orbits are white curves and the comet's orbit is a blue curve. The brighter lines indicate the portion of the orbit that is above the ecliptic plane defined by Earth's orbital plane and the darker portions are below the ecliptic plane. This image was created with the Orbit Viewer applet, provided by the Osamu Ajiki (AstroArts) and modified by Ron Baalke (Solar System Dynamics group, JPL). <http://ssd.jpl.nasa.gov/sbdb.cgi?orb=1;sstr=41P>

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## Centennial Observatory and Faulkner Planetarium



Herrett Telescope CSI Centennial Observatory

Event	Place	Date	Time	Admission
<a href="#">Astronomy Talk</a> : "The Hunt for Planet Nine"	Faulkner Planetarium	Wednesday, February 1 <sup>st</sup> , 2017	6:00 to 7:00 PM	Adults: \$2.50 Children (7-17) & CSI students: \$1.50 Ages 0-6: FREE
<a href="#">Astronomy Talk</a> Night Telescope Viewing	Centennial Observatory	Wednesday, February 1 <sup>st</sup> , 2017	7:00 to 9:00 PM	Free with Astronomy Talk admission
<a href="#">Penumbral Lunar Eclipse</a>	Centennial Observatory	Friday, February 10 <sup>th</sup> , 2017	5:45 to 7:00 PM	FREE
Monthly Free Star Party	Centennial Observatory	Saturday, February 11 <sup>th</sup> , 2017	7:00 PM to midnight	FREE
Telescope Tuesday	Centennial Observatory	Tuesday, February 14 <sup>th</sup> , 2017	7:00 to 9:00 PM	\$1.50 or free with <a href="#">Faulkner Planetarium</a> admission
Telescope Tuesday	Centennial Observatory	Tuesday, February 28 <sup>th</sup> , 2017	7:15 to 9:00 PM	\$1.50 or free with <a href="#">Faulkner Planetarium</a> admission

### Faulkner Planetarium Show Times

To find out what shows are available, and to view trailers click this link:

[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](mailto:jtubbs015@msn.com)

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

### **Membership Benefits:**

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



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