

# Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

October 2020

## Membership Meeting

See President's Message for October

## Centennial Observatory

Due to the impossibility of maintaining proper social distance within the confined space of the observatory dome, the observatory is currently closed until further notice. See President's Message.

## Faulkner Planetarium

See inside for Details

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

## Club Officers

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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

Colleagues,

The Planetary Society's weekly podcast of Sept. 23 features an interesting space fact of the week -- and I hope I summarized Bruce Betts correctly: The pressure of Venus' atmosphere is effectively a little greater than the force of a grizzly bite. That Venus should be the focus of the recent podcast's weekly factoid should be of no surprise. Scientists in Europe have announced that they believe they have found a phosphine signature in Venusian atmosphere. Phosphine is a toxic gas, and has been detected in the atmosphere of the two gas giants, but on the rocky inner planets, it's produced by organic life-forms on earth. One place where it's been found is in Penguin dung heaps.

So finding something that might suggest phosphine is on Venus might suggest there's life -- at least on a microbial level -- on a planet once perceived as inhabitable. Now, as NASA Director Jim Bridenstine "tweeted", Venus goes from a neglected afterthought to the next major focus of the solar system.

The press conference announcement was typical of what science should be. There was indeed excitement, but scientists were not only cautious, they acknowledged how much effort they had put into trying to disprove the theory, and now they are calling on other researchers to further investigate the matter. To them, this is far from settled.

Whether or not there is life, this is a significant step, for it changes our idea of what can happen on a planet. Remember, we didn't know about phosphine being anywhere but earth until we found it in Jovian and Saturnian atmospheres in the 1970s, and it wasn't until late last year that after 10 years of researching life on our own earth that scientists determined that phosphine could even be a link to finding life on rocky planets.

In any case, we are living in exciting times, and this month is a good month for it. While we are still limited to Zoom meetings, this month will be the annual tradition of The Year in Pictures. Despite being socially distanced from each other, we have still come up with some great pictures this year, and even one of us got on national television. If you still have photos you haven't sent in yet, contact me directly please. I would like to have the presentation finished by Friday, Oct. 9. That will lead to the actual meeting on Saturday, Oct. 10, at 7 p.m. A Zoom invitation will be sent out later.








Lastly, I want to thank those of you who were willing to wear the masks and gloves needed to help out with Astronomy Day at the Herrett Center. Not only do my granddaughter and I appreciate what you did, but the entire community does.

Clear views,

Rob Mayer

# Calendar

October 2020

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				<div>1</div> <div>Harvest Moon 3:06 pm</div> <div></div> <div>Visible 100% Age: 14.42 Days</div>	<div>2</div> <div><b>BSU</b> <b>1<sup>st</sup> Friday</b> <b>Astronomy</b> see Calendar of Events</div>	<div>3</div>
<div>4</div>	<div>5</div>	<div>6</div> <div>Mars is closet to Earth</div> <div>38.57 million miles at 8:00am MDT</div>	<div>7</div> <div>Draconid Meteor Showers</div> <div></div>	<div>8</div>	<div>9</div>	<div>10</div> <div>Last Quarter Moon</div> <div></div> <div>Visible: 45% ↓ Age: 22.62 Days</div>
<div>11</div>	<div>12</div>	<div>13</div>	<div>14</div>	<div>15</div>	<div>16</div> <div>New Moon</div> <div></div> <div>Visible 0% Age: 29.15 Days</div>	<div>17</div>
<div>18</div>	<div>19</div>	<div>20</div>	<div>21</div> <div>Orionid Meteor Showers</div> <div></div>	<div>22</div>	<div>23</div> <div>First Quarter Moon</div> <div></div> <div>Visible 49% ↑ Age: 7.33 Days</div>	<div>24</div>
<div>25</div>	<div>26</div>	<div>27</div>	<div>28</div>	<div>29</div>	<div>30</div>	<div>31</div> <div>Hunter's Moon 3:06 pm</div> <div></div> <div>Visible 100% Age: 14.65 Days</div>

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

## Special Announcement

### MVAS is Cordially Invited

Friday, October 9

BAS General Meeting guest speaker

Meeting at 7:00 pm via Zoom

"Touch the Stars" by Tom Field, Contributing Editor with *Sky & Telescope*

Even if you wanted to touch a star, they're all impossibly distant. Despite these great distances, astronomers have learned an enormous amount about stars. How? The most common method to study the stars is through spectroscopy, the science of analyzing the colorful rainbow spectrum produced by a prism-like device.

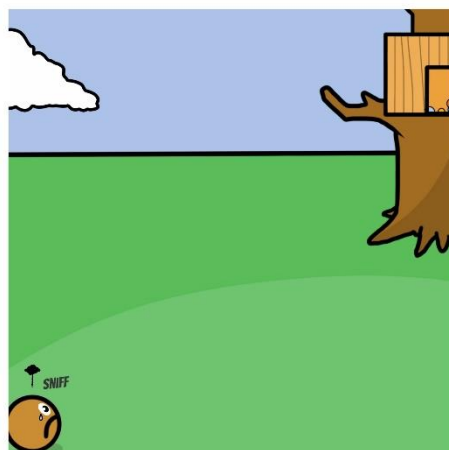
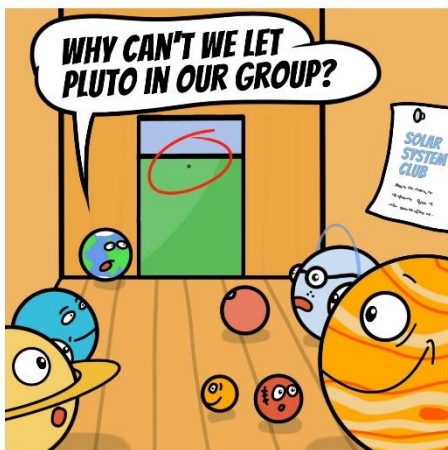
Until recently, spectroscopy was too expensive and too complicated for all but a handful of amateurs. Today though, new tools make spectroscopy accessible to almost all of us. You no longer need a PhD, dark skies, long exposures, enormous aperture ... or a big budget! With your current telescope and FITS camera (or a simple web cam or DSLR without a telescope) you can now easily study the stars yourself. Wouldn't you like to detect the atmosphere on Neptune or the red shift of a quasar right from your own backyard?!

This talk, with lots of interesting examples, will show you what it's all about and help you understand how spectroscopy is used in research. Even if you're an armchair astronomer, understanding spectroscopy will enhance your understanding of the things you read and the night sky. There will be a live Q&A after Tom's 45-minute presentation.



Tom Field has been a Contributing Editor at *Sky & Telescope Magazine* for the past 7 years. He is the author of the RSpec software ([www.rspec-astro.com](http://www.rspec-astro.com)), which received the S&T "Hot Product" award in 2011. Tom is a popular speaker who has spoken to hundreds of clubs via the web at many conferences, including NEAF, the NEAF Imaging Conference, PATS, the Winter Star Party, the Advanced Imaging Conference, SCAE, and others. His enthusiastic style is lively and engaging. He promises to open the door for you to this fascinating field!

### A SPECIAL 'TREAT' FOR YOU FOR HALLOWEEN



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## October Celestial Calendar by Dave Mitsky

All times, unless otherwise noted, are UT (subtract 7 hours and, when appropriate, 1 calendar day for MDT)

- 10/1** Mercury is at greatest eastern elongation (25.8 degrees) at 16:00; Full Moon, known as the Blood or Sanguine Moon, and this year's Harvest Moon, occurs at 21:05
- 10/3** Venus is 0.09 degrees south of the first-magnitude star Regulus (Alpha Leonis) at 0:00; the Moon is 0.7 degrees south of Mars, with an occultation taking place in southwestern Africa, Ascension Island, most of western Antarctica, and southern and southeastern South America, at 3:00; the Moon is at apogee, subtending 29' 25" from a distance of 406,321 kilometers (252,476 miles), at 17:22
- 10/4** Pluto is stationary, with prograde or direct (eastward) motion to resume, at 16:00; the Moon is 3 degrees south of Uranus at 9:00
- 10/6** The Moon is 5.9 degrees southeast of the bright open cluster M45 (the Pleiades or Subaru) in Taurus at 6:00; Mars is at its closest approach to the Earth (62,069,570 kilometers or 38,568,243 miles) at 14:00
- 10/7** The Moon is 4.4 degrees north of the first-magnitude star Aldebaran (Alpha Tauri) at 0:00
- 10/8** The peak of the Draconid meteor shower (a zenithal hourly rate of 15 per hour) is predicted to occur at 3:00; the Moon is 0.02 degrees south of the bright open cluster M35 in Gemini at 20:00
- 10/9** Mercury is at its southernmost latitude from the ecliptic plane (-7.0 degrees) at 9:00
- 10/10** Last Quarter Moon occurs at 0:40; the Curtiss Cross, an X-shaped illumination effect located between the craters Parry and Gambart, is predicted to be visible at 12:59
- 10/11** Jupiter is at eastern quadrature (90 degrees from the Sun) at 14:00; the Moon is 2.4 degrees north-northeast of the bright open cluster M44 (the Beehive Cluster or Praesepe) in Cancer at 15:00
- 10/13** The Moon is 4.3 degrees north-northeast of Regulus at 6:00; Mars is at opposition (magnitude -2.6, angular size 22.4") at 23:00
- 10/14** The Moon is 4 degrees north of Venus at 0:00; Mercury is stationary, with retrograde motion to begin, at 4:00
- 10/15** Pluto is at its southernmost declination (-22.65 degrees) at 14:00
- 10/16** New Moon occurs (lunation 1210) occurs at 19:31; the Moon is 6.3 degrees north-northeast of the first-magnitude star Spica (Alpha Virginis) at 21:00; the Moon is at perigee, subtending 33' 29" from a distance of 356,912 kilometers (221,775 miles), at 23:46
- 10/17** The Moon is 7 degrees north of Mercury at 19:00; a double Galilean shadow transit (Io's shadow follows Calisto's) begins at 21:26
- 10/18** Saturn is at eastern quadrature (90 degrees from the Sun) at 14:00
- 10/19** The Moon is 5.6 degrees north-northeast of the first-magnitude star Antares (Alpha Scorpii) at 23:00
- 10/20** The Moon is at the descending node (longitude 261.3 degrees) at 16:00
- 10/21** The peak of the Orionid meteor shower (a zenithal hourly rate of 20 per hour) is predicted to occur at 6:00
- 10/22** The Moon is 2 degrees south of Jupiter at 17:00; the Sun's longitude is 210 degrees at 23:00
- 10/23** The Moon, Jupiter, and Saturn lie within a circle with a diameter of 6 degrees at 2:00; the dwarf planet/asteroid 1 Ceres is stationary at 3:00; the Moon is 3.0 degrees south of Saturn at 4:00; First Quarter Moon occurs at 13:23; asteroid 11 Parthenope (magnitude +9.4) is at opposition in Pisces at 14:00
- 10/24** The Lunar X, also known as 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 1:44
- 10/25** Mercury is in inferior conjunction with the Sun (0.671 astronomical units from the Earth, latitude -1.9 degrees) at 18:00
- 10/26** Asteroid 471 Papagena (magnitude +9.5) is at opposition in Cetus at 6:00
- 10/27** The Moon is 4 degrees south of Neptune at 6:00
- 10/28** Mercury is at the ascending node through the ecliptic plane at 11:00
- 10/29** The Moon is 2.7 degrees southeast of Mars at 19:00
- 10/30** The Moon is at apogee, subtending 29' 24" from a distance of 406,394 kilometers (252,522 miles), at 18:45; the Sun enters the constellation of Libra, at longitude 217.8 degrees on the ecliptic at 19:00; Venus is at perihelion (0.7184 astronomical units from the Sun) at 23:00
- 10/31** The Moon is 3 degrees south of Uranus at 13:00; Full Moon, the smallest of the year, occurs at 14:50; Uranus is at opposition (magnitude +5.7, angular size 3.7") at 16:00

### Birthday's in October

Launch of Sputnik 4.10.1957

NASA officially began operations in Oct. 1958

Neil deGrasse Tyson (1958- )  
Henry Norris Russell (1877-1957)  
Niels Erik Nørlund (1885-1981)

Christopher Wren (1632-1723)  
Thomas Bopp (1949-2018)  
Martin Folkes (1690-1754)

Edmond Halley (1656-1742)  
David Schramm (1945-1997)  
James Dunlop (1793-1848)



## The Sun, the Moon, & the Planets



The **Sun** is located in Virgo on October 1st at 0:00 UT. It enters Libra at 19:00 UT on October 30th.

The **Moon** is 13.4 days old, subtends 29.8 arc minutes, is illuminated 99%, and is located in Pisces on October 1st at 0:00 UT. The Moon reaches its greatest northern declination (+24.5 degrees) on October 10th and its greatest southern declination (-24.7 degrees) on October 22nd. Longitudinal libration is at a maximum of +7.7 degrees on October 23rd and a minimum of -7.7 degrees on October 11th. Latitudinal libration is at a maximum of +6.6 degrees on October 1st and +6.7 degrees on October 28th and a minimum of -6.6 degrees on October 15th. Favorable librations for the following lunar features occur on the indicated dates: Crater Focas on October 12th, Crater Rydberg on October 13th, Crater Goddard on October 22nd, and Crater Boss on October 24th. There are two Full Moons this month, resulting in the second one being referred to by one definition as a Blue Moon. New Moon occurs on October 16th. Large tides will occur for several days thereafter. The Moon is at apogee (at a distance of 63.70 Earth-radii) on October 3rd and again (at a distance of 63.72 Earth-radii) on October 30th and at perigee (a distance of 55.96 Earth-radii) on October 16th. The Moon occults Mars from some parts of the world on October 3rd.

**Mercury** reaches greatest eastern elongation on October 1st and greatest heliocentric latitude south on October 9th. A very thin crescent Moon passes seven degrees north of Mercury on October 17th. The speediest planet grows fainter and drops lower in the western sky as it heads towards inferior conjunction on October 25th.

**Venus** maintains its brilliance this month as it decreases in angular diameter from 15.5 to 13.2 arc seconds while increasing in illumination from 72 to 81%. Venus and Regulus undergo a very close appulse on October 2nd and October 3rd. The two celestial objects are closest at 2:00 p.m. EDT (18:00 UT) on October 2nd. The waning crescent Moon passes four degrees to the north of Venus on October 13th.

**Mars** rises two hours after sunset by the end of August. The Red Planet brightens from magnitude -1.1 to magnitude -1.8 and increases in angular diameter from 14.6 arc seconds to 18.7 arc seconds. Mars is at perihelion on August 3rd. An impressive lunar conjunction takes place on August 9th, when the waning gibbous Moon passes about one degree to the south of Mars.

**Jupiter** fades slightly to magnitude -2.2 and decreases in apparent size to 37.1 arc seconds this month. It sets by 11:00 p.m. local time on October 31st. Jupiter is at eastern quadrature on October 11th. Eclipses of the Galilean satellites will be enhanced as a result. A double Galilean satellite shadow transit takes place on October 17th. The waxing gibbous Moon passes two degrees south of Jupiter on October 22nd. Information on Great Red Spot transit times and Galilean satellite events is available on pages 52 and 53 of the October 2020 issue of Sky & Telescope.

**Saturn** sets by 11:00 p.m. local time as October ends. The Ringed Planet's disk is 17 arc seconds in angular diameter and its rings measure 38 arc seconds this month. On October 1st, Saturn lies seven degrees east of Jupiter. Both planets are now undergoing prograde or eastward motion so the gap between them decreases to just five degrees by the end of October. Saturn reaches eastern quadrature on October 18th, which results in the planet having a more three-dimensional appearance. The waxing crescent Moon passes three degrees south of Saturn on October 23rd. For information on Saturn's satellites, browse [Sky and Telescope](#).

**Uranus** is located 1.2 degrees southwest of the sixth-magnitude star 29 Arietis on October 1st. Retrograde motion carries the ice giant 2.3 degrees from the star by month's end. Uranus reaches opposition on October 31st, it is 2.6 light hours from the Earth and shines at magnitude +5.7, which is bright enough to be visible without optical aid from a dark site. The waning gibbous Moon passes three degrees south of the ice giant on October 4th. A finder chart is available at [Naked Eye Planets](#).

**Neptune** travels from 1.6 degrees east-northeast of the fourth-magnitude star Phi Aquarii to just 57 arc minutes from the star during October. The waning gibbous Moon passes four degrees south of Neptune on October 27th. An article on Neptune complete with finder charts appears on page 48 of the September 2020 issue of Sky & Telescope. See [this Naked Eye Planet site](#) for a finder chart. Triton, Neptune's brightest satellite, can be located using the [Sky & Telescope interactive observing tool](#).

The dwarf planet **Pluto** can be found near the Teaspoon asterism in northeastern Sagittarius at a declination of -22.65 degrees. Finder charts can be found at pages 48 and 49 of the July 2020 issue of Sky & Telescope and on page 243 of the RASC Observer's Handbook 2020.

This month **Mercury** is located in the west, **Mars and Uranus** in the east, **Jupiter and Saturn** in the south, and **Neptune** in the southeast during the evening. At midnight, **Mars and Neptune** can be found in the south and **Uranus** in the southeast. **Venus** is in the east and **Mars and Uranus** are in the west in the morning sky.

For more on the planets and how to locate them, browse [Naked Planets](#).

Free star maps for October can be downloaded at [Skymaps](#). Information on passes of the ISS, the USAF's X-37B, the HST, Starlink, and other satellites can be found at [Heavens Above](#).

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### Asteroids



On October 30th, **Asteroid 8 Flora** is less than 10 arc minutes west of Gamma Ceti (magnitude +3.5). On the following day, the eighth-magnitude asteroid is just 209,000 kilometers (130,000 miles) from the Earth, the closest approach to our planet during the period from 1980 to 2060.

**Asteroid 19 Fortuna** shines at tenth magnitude as it travels southward through Aquarius, about 1.5 degrees north of the fourth-magnitude star Lambda Aquarii.

**Asteroid 11 Parthenope** (magnitude +9.4) reaches opposition on October 23rd.

Three days later **Asteroid 471 Papagena** (magnitude +9.5) does the same.

Other asteroids brighter than magnitude +11.0 coming to opposition this month include **747 Winchester** (magnitude +10.4) on October 13th, **194 Prokne** (magnitude +10.7), and **67 Asia** (magnitude +10.8) on October 24th.

Information on asteroid occultations taking place this month is available at [Asteroid Occultations](#).

### Comets



**Comet P/Howell** heads eastward through Scorpius and Sagittarius this month. The period comet passes south of the globular cluster M19 on October 5th, south of the globular cluster NGC 6293 on October 6th, south of the globular cluster NGC 6355 on October 10th, south of the dark nebula LDN 1773 (the Pipe Nebula) on October 11th through October 13th, and north of the open cluster NGC 6520 on October 19th.

### Meteor Showers



The **Draconid** (formerly the Giacobinid) meteor shower peaks on the night of October 7th/8th. The Draconids are quite variable and have produced meteor storms in 1933 and 1946. There is the possibility of higher than normal rates between 8:30 p.m. and 9:00 p.m. EDT (0:30 to 1:00 UT on October 8th) this year. The waxing gibbous Moon will rise around 9:00 p.m. EDT (1:00 UT on October 8th). Comet 21P/Giacobini-Zimmer is the parent comet of the Draconids. Consult <https://earthsky.org/?p=3669> and <https://skyandtelesc...howers-in-2020/> for additional information on the Draconid meteor shower.

The **Orionid** meteor shower peaks on the night of October 21st/22nd and is not adversely affected by a waxing crescent Moon. Orionid meteors are fragments of Comet 1P/Halley. Browse <https://www.timeanddate.com/orionid.html> and <https://earthsky.org...d-meteor-shower> or consult page 52 of the October 2020 issue of Sky & Telescope for more on the Orionids.

## Earth & Miscellaneous



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

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

Information on the celestial events transpiring each week can be found at <https://stardate.org/nightsky> and <http://astronomy.com/skythisweek> and <http://www.skyandtelescope.com/observing/sky-at-a-glance/>

Free star maps for July can be downloaded at <http://www.skymaps.com/downloads.html> and <https://www.telescope.com/content.jsp?pageName=Monthly-Star-Chart>

Data on current supernovae can be found at <http://www.rochesterastronomy.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 [https://www.cambridge.org/turnleft/seasonal\\_skies\\_july-september](https://www.cambridge.org/turnleft/seasonal_skies_july-september)

Telrad finder charts for the Messier Catalog and the SAC's 110 Best of the NGC are posted at <http://www.custerobservatory.org/docs/messier2.pdf> and <http://www.saguaroastro.org/content/db/Book110BestNGC.pdf> respectively.

Information pertaining to observing some of the more prominent Messier galaxies can be found at <http://www.cloudynights.com/topic/358295-how-to-locate-some-of-the-major-messier-galaxies-and-helpful-advice-for-novice-amateur-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>

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>

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

This [Time & Date site](#) will display, for any given date/time, the apparent and comparative sizes of the planets, along with their magnitudes and distances!

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!

## Deep Sky



Deep-sky object list generators can be found at <http://www.virtualcolony.com/sac/> and <https://bit.ly/3jCLtI5> and <https://telescopius....?fromdsobrowser>

Eighty-five binary and multiple stars for October: Struve 2973, Struve 2985, Struve 2992, Struve 3004, Struve 3028, Otto Struve 501, Struve 3034, Otto Struve 513, Struve 3050 (Andromeda); 29 Aquarii, 41 Aquarii, 51 Aquarii, 53 Aquarii, Zeta Aquarii, Struve 2913, Struve 2935, Tau-1 Aquarii, Struve 2944, Struve 2988, Psi-1 Aquarii, 94 Aquarii, 96 Aquarii, h3184, Omega-2 Aquarii, 107 Aquarii (Aquarius); Otto Struve 485, Struve 3037, 6 Cassiopeiae, Otto Struve 512, Sigma Cassiopeiae (Cassiopeia); Xi Cephei, Struve 2883, Struve 2893, Struve 2903, Krueger 60, Delta Cephei, Struve 2923, Otto Struve 482, Struve 2947, Struve 2948, Struve 2950, Struve 2984, Omicron Cephei, Otto Struve 502 (Cepheus); Otto Struve 459, h1735, Struve 2876, Otto Struve 465, Struve 2886, Struve 2894, h1756, Struve 2902, Struve 2906, 8 Lacertae, Otto Struve 475, 13 Lacertae, h1828, 16 Lacertae (Lacerta); Struve 2857, Struve 2877, 34 Pegasi, Struve 2908, Xi Pegasi, Struve 2958, Struve 2978, 57 Pegasi, Struve 2991, h1859, Struve 3007, Struve 3021, Otto Struve 504, Struve 3044 (Pegasus); Struve 3009, Struve 3019, Struve 3033 (Pisces); Eta Piscis Austrini, Beta Piscis Austrini, Dunlop 241, h5356, Gamma Piscis Austrini, Delta Piscis Austrini, h5371 (Piscis Austrinus); h5417, Delta Sculptoris, h5429 (Sculptor)

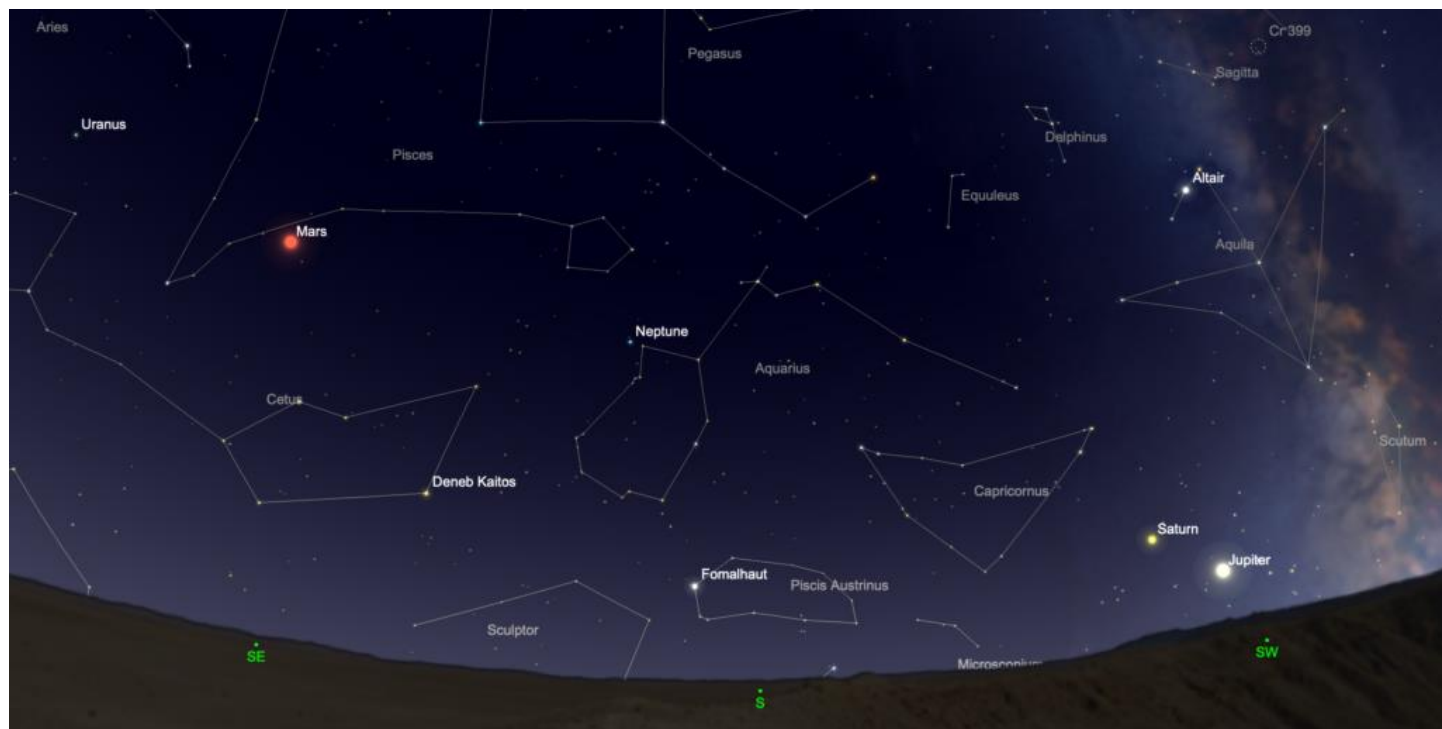
Seventy-five deep-sky objects for October: NGC 7640, NGC 7662, NGC 7686 (Andromeda); NGC 7180, NGC 7183, NGC 7184, NGC 7293, NGC 7392, NGC 7585, NGC 7606, NGC 7721, NGC 7723, NGC 7727 (Aquarius); Cz43, K12, M52, NGC 7635, NGC 7788, NGC 7789, NGC 7790, St12 (Cassiopeia); B171, B173-4, IC 1454, IC 1470, K10, Mrk50, NGC 7235, NGC 7261, NGC 7354, NGC 7380, NGC 7419, NGC 7510 (Cepheus); IC 1434, IC 5217, NGC 7209, NGC 7223, NGC 7243, NGC 7245 (Lacerta); NGC 7177, NGC 7217, NGC 7320 (the brightest galaxy in Stephan's Quintet), NGC 7331, NGC 7332, NGC 7339, NGC 7448, NGC 7454, NGC 7479, NGC 7619 (the brightest member of Pegasus I), NGC 7626, NGC 7678, NGC 7742, NGC 7769 (Pegasus); NGC 7541, NGC 7562, NGC 7611 (Pisces); IC 5156, IC 5269, IC 5271, NGC 7172, NGC 7173, NGC 7174, NGC 7176, NGC 7201, NGC 7203, NGC 7214, NGC 7221, NGC 7229, NGC 7314, NGC 7361 (Piscis Austrinus); NGC 7507, NGC 7513, NGC 7713, NGC 7755, NGC 7793 (Sculptor)

Top ten binocular deep-sky objects for October: M52, NGC 7209, NGC 7235, NGC 7243, NGC 7293, NGC 7510, NGC 7686, NGC 7789, NGC 7790, St12

Top ten deep-sky objects for October: K12, M52, NGC 7209, NGC 7293, NGC 7331, NGC 7332, NGC 7339, NGC 7640, NGC 7662, NGC 7789

The objects listed above are located between 22:00 and 24:00 hours of right ascension.

Source: <https://www.cloudynights.com/topic/732305-october-2020-celestial-calendar/>



The planet Mars in the constellation at opposition in Pisces at about 10 p.m. local time on October 13, 2020.

Source: <https://cosmicpursuits.com/night-sky-this-month/>



## NASA Night Sky Notes



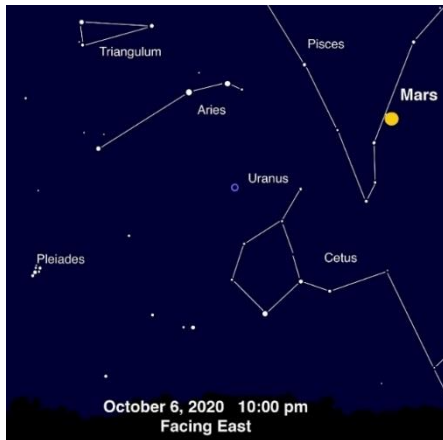
This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

### Observe the Skies Near Mars

by David Prosper

October is a banner month for Mars observers! October 6 marks the day Mars and Earth are at closest approach, a once-every-26-months event. A week later, on October 13, Mars is at opposition and up all night. Mars is very bright this month, and astronomers are eager to image and directly observe details on its disc; however, don't forget to look at the space around the planet, too! By doing so, you can observe the remarkable retrograde motion of Mars and find a few nearby objects that you may otherwise overlook.



If you are paying this much attention to Mars, you're likely curious about the skies surrounding it! Find Mars in the constellation Pisces, with constellations Aries, Triangulum, and Cetus nearby. Aries may be the only one of these dimmer patterns readily visible from light-polluted areas. The Pleiades rises shortly after Mars. Dim Uranus is found close by, in Aries. If you are observing Mars up close, use the same eyepiece to check out Uranus's tiny blue-green disc. If you are uncertain whether you spotted Uranus, you didn't see it! Unlike stars, Uranus doesn't resolve to a point at high magnifications.

Since ancient times, Mars stood out to observers for its dramatic behavior. Usually a noticeable but not overly bright object, its wandering path along the stars showed it to be a planet instead of a fixed star. Every couple of years, this red planet would considerably flare up in brightness, for brief times becoming the brightest planet in the sky before dimming back down. At these times, Mars would also appear to slow down its eastward motion, stop, then reverse and head

westward against the stars for a few weeks, before again stopping and resuming its normal eastward movement. This change in the planet's movement is called "apparent retrograde motion." While all of the planets will appear to undergo retrograde motion when observed from Earth, Mars's retrograde appearances may be most dramatic. Mars retrograde motion in 2020 begins on September 10 and ends on November 16, a prime observing window. October 6 is the day of closest approach, with the two planets just 38.6 million miles apart. [Both images created with help from [Stellarium.org](https://stellarium.org).]

You can observe Mars' motion with your eyes, and it makes for a fun observing project! You can sketch the background stars and plot Mars as you observe it night after night, or you can set up a photographic series to track this motion. Does the planet move at the same rate night after night, or is it variable? As you observe its motion, note how Mars' brightness changes over time. When does it appear at its most brilliant?

NASA has tons of great Mars-related resources!

→ Want to know more about apparent retrograde motion? [NASA explains it for you.](#)

→ Check out detailed views with [NASA's HiRISE satellite](#), returning stunning closeups of the Martian surface since 2006.

→ NASA's Curiosity Rover will be joined in a few months by the [Perseverance Rover](#), launched in late July to take advantage of the close approach of Mars and Earth, a launch window that opens two years. Calculate the ideal launch window yourself with [this handy guide](#).

→ Young astronomers can find many Mars resources and activities on [NASA's Space Place](#).

The Night Sky Network's "Exploring Our Solar System" handout invites you to chart the positions of the planets in the Solar System, and NSN coordinator Jerelyn Ramirez recently contributed an update featuring Mars opposition! You can [download both versions](#).

Here's to clear skies and good seeing for Mars's best appearance until 2033!



## Phil Harrington's Cosmic Challenge

### Spotting Uranus

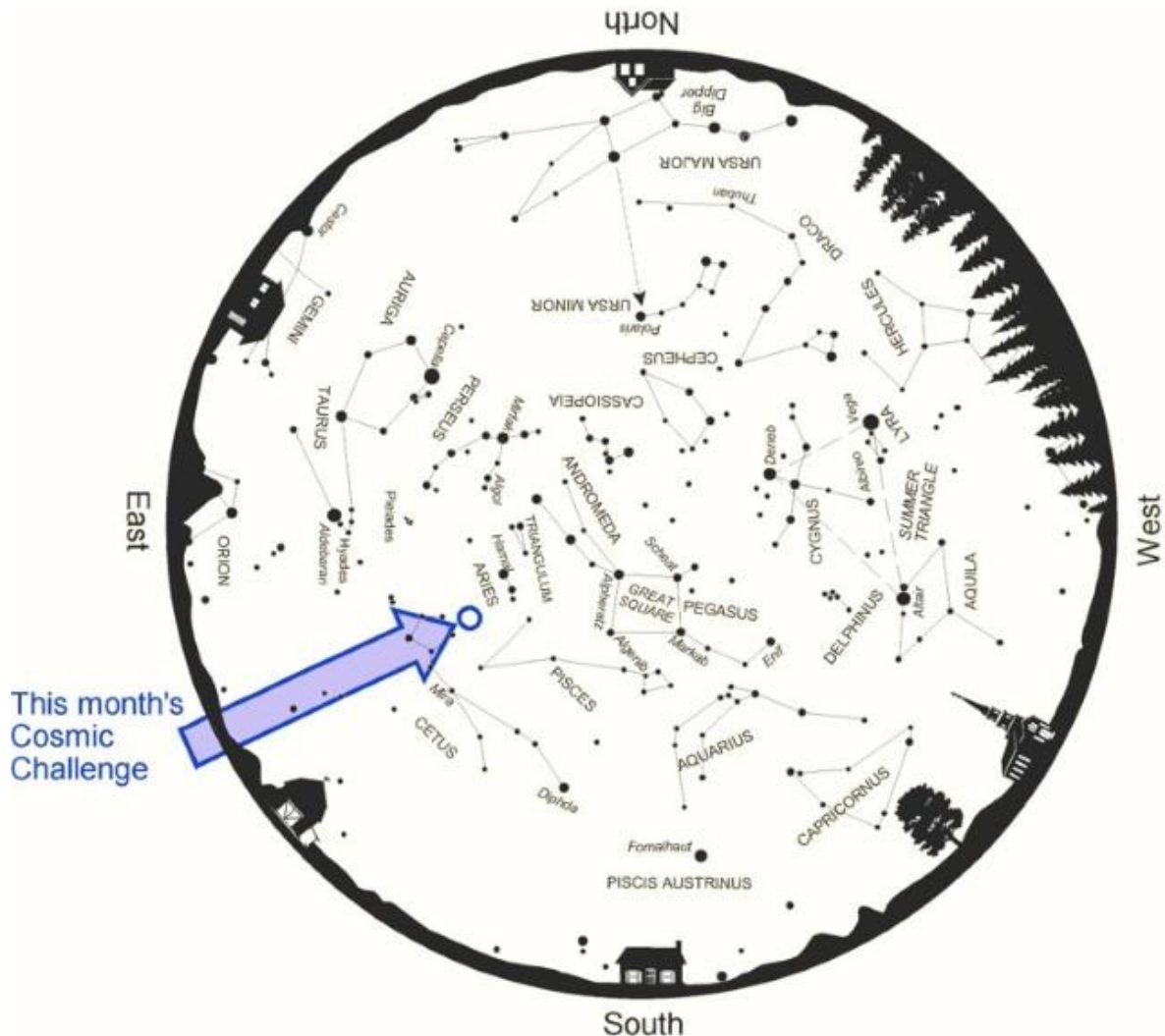


Naked Eyes

Target	RA	DEC	Const.	Mag
Uranus	02h 24.8m	+13° 52'	Aries	5.7

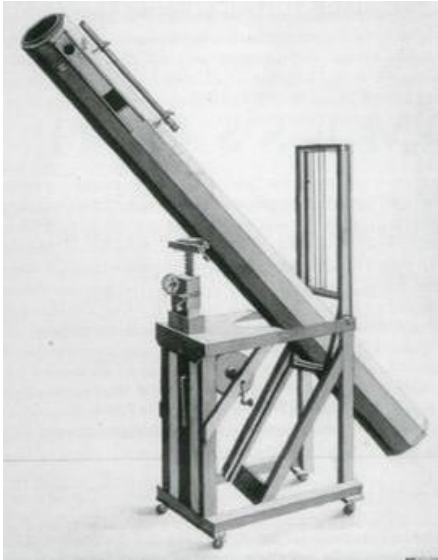
On March 12, 1781, the solar system was a simple, very well-behaved place that was best summed up with the phrase "what you see is what you get." There were the Sun, the Moon, and the five planets: Mercury, Venus, Mars, Jupiter, and Saturn. Apart from a handful of moons orbiting some of the planets, and the occasional faint comet that required a telescope to be seen, the entire contents of the solar system were naked-eye territory.

All that changed on the very next night. While looking through his homemade 6.2-inch (15.7cm) f/13.6 reflecting telescope, William Herschel stumbled onto something unexpected. Herschel, a German-born amateur astronomer living in England, had found a greenish star that was not shown on any of his star charts. "What a peculiar looking star," he must have thought. In fact, if he looked carefully, he could see it was not a star at all, but rather showed a fuzzy disk.



Autumn star map adapted from [Star Watch](#) by Phil Harrington

Returning to the same spot in the sky over the next several nights, Herschel found that his greenish discovery had moved just slightly against the background of stationary stars. The fact that the solar system had five planets was well established, leading him to believe initially that he had discovered a comet. Only after many additional observations were compiled and examined was a definitive orbit calculated. Whatever Herschel had discovered was located far beyond Saturn, the most distant planet known at the time. Further, it was following a roughly circular orbit, quite a contrast to the highly elliptical orbits of comets.



Replica of Herschel's telescope used to discover Uranus on March 13, 1781.

It eventually became clear that Herschel had discovered a new member of the Sun's planetary family. Herschel referred to his new find as *Georgium Sidus* in honor of King George III, the English monarch at the time. Fortunately, his suggestion didn't stick. If it had, however, today's school children would be learning about the planets Mercury, Venus, Earth, Mars, Jupiter, Saturn, *George*, and Neptune. In the end, saner heads prevailed. The name Uranus, proposed by Johann Elert Bode, was adopted by the rest of the astronomical world.

The fact that Uranus hovers near the naked-eye magnitude limit immediately raised the question in Bode's mind whether the distant planet had ever been seen by others, either with or without optical aid, before Herschel's discovery. Looking at western records only, it appears that Uranus had been seen more than 20 times prior to that fateful night in 1781, yet no observer ever recognized it as more than a faint star. That's likely due to the planet's slow solar revolution. Uranus takes just over 84 earth years to complete one voyage around the Sun.

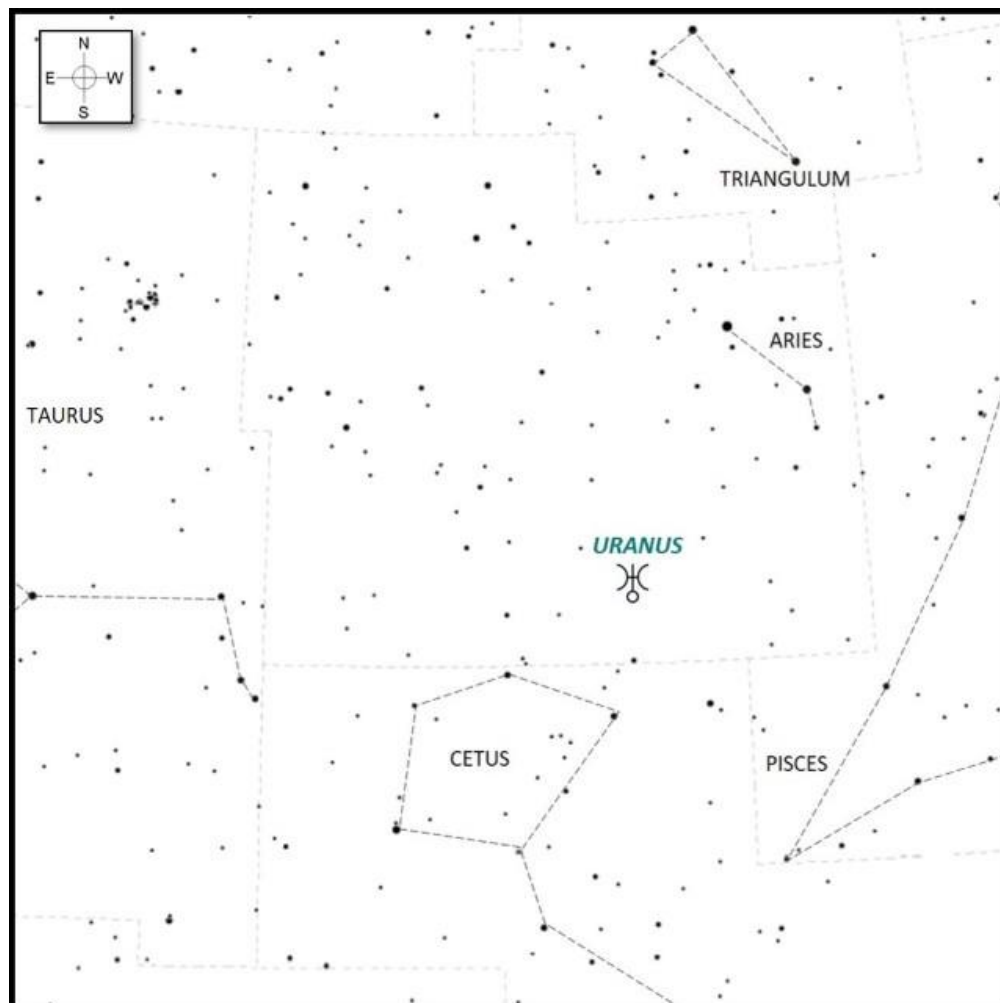
The first recorded pre-discovery sighting of Uranus came in 1690 by John Flamsteed, the first Astronomer Royal at the Royal Greenwich Observatory. Flamsteed is most remembered for compiling his famous star catalog in which he assigned numbers to stars within each constellation in order of increasing Right Ascension. Although his catalog was initially created to help British navigators determine their longitude when sailing the high seas, astronomers still use Flamsteed's catalog to this day. While surveying Taurus on December 23, 1690, Flamsteed noted several faint stars between the Pleiades and the Hyades. He assigned one star in particular the designation 34 Tauri and moved on. As did "34 Tauri!" In fact, 22 years later, Flamsteed met "34 Tauri" again after both had progressed to Leo the Lion. Flamsteed recorded Uranus in 1712 near the star Rho ( $\rho$ ) Leonis. He also recorded it four more times in 1715, when Uranus was south of Sigma ( $\sigma$ ) Leonis.

No fewer than three other astronomers also saw Uranus before Herschel but did not recognize it as more than a faint star. The third Astronomer Royal, James Bradley, glimpsed it three times, first as a dim point in Capricornus in 1748, and again in Aquarius in 1750 and 1753. Tobias Mayer, professor of economics and mathematics at Georg-August University of Göttingen, Germany, made a single observation in 1756 when Uranus was also within Aquarius. Finally, there is the hapless tale of Pierre Charles Le Monnier, a French astronomer and physicist. Remembered best for his temper and squabbling nature, Le Monnier apparently saw Uranus as many as ten times between the years 1764 and 1771. Six of those observations came within a four-week window during January 1769, when Uranus had wound its way into Aries.



Pre-Herschelian "discoverers" of Uranus include (left to right) John Flamsteed, James Bradley, Tobias Mayer and Pierre Charles Le Monnier.

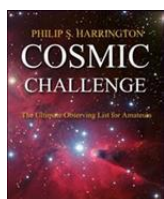
Since Le Monnier's time, Uranus has completed just about three orbits of the Sun, bringing it back into Aries. The stark backdrop of this area means the chances are good that you will be able to single out Uranus without any optical aid, provided your sky is dark and free of light-pollution. To improve the odds, look for Uranus when it is near opposition and its distance away is minimal. That occurs this year on Halloween, October 31, which makes this month the perfect time to try this naked eye challenge. But be aware that the Full Moon will be close at hand on the 31st, so plan your attempt accordingly.



To help you in your quest, the chart above (adapted from [Cosmic Challenge](#) by Phil Harrington) shows the current location of Uranus and surrounding field stars down to magnitude 6.5. Use binoculars to find the planet first, and then move them aside without shifting the direction of your eyes. There are no stars in its immediate area, so if you see a faint point where the symbol for Uranus (♅) is plotted, then you got it.

Uranus passed aphelion (its furthest point from the Sun -- 1.9 billion miles or 3 billion kilometers) in February 2009. Since then, things continue to slowly improve as Uranus creeps toward perihelion (its closest point to the Sun, 1.7 billion miles or 2.7 billion kilometers) in 2050. By then, it will have brightened modestly to magnitude 5.3. Can you spot the seventh planet by eye alone? I'd love to hear of your successes (or failures) in this column's discussion forum. Or contact me directly through [my web site](#).

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



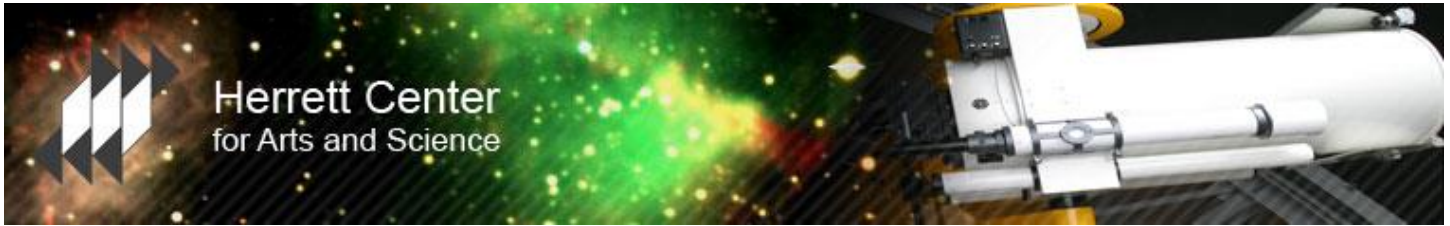
About the Author: Phil Harrington writes the monthly [Binocular Universe](#) column in [Astronomy](#) magazine and is the author of 9 books on astronomy. Visit his web site at [www.philharrington.net](#) to learn more.

A revised, second printing of [Cosmic Challenge: The Ultimate Observing List for Amateurs](#) is now available with updated data tables and charts for finding various solar system objects, such as Pluto and Vesta, as well as improved renditions of the many eyepiece sketches that accompany each of the 187 challenges encompassing more than 500 individual objects. The book is available from [Amazon.com](#).

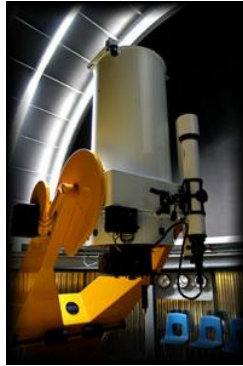
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## Observatory and Planetarium



The Herrett Center has re-opened, with [COVID-19 safety protocols](#) for your protection. Check out our [reopening video message](#) and we hope to see you soon!



### Centennial Observatory Upcoming Events

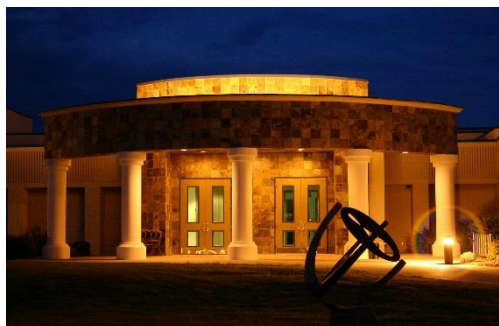
Event	Place	Date	Time	Admission
Monthly Free Star Party	Herrett Center front lawn, with limited access to observatory	Saturday, October 10 <sup>th</sup> , 2020	8:00 PM to 1:00 AM	FREE

**Due to limited space for social distancing within the confined space of the observatory dome, the observatory is currently closed until further notice.**



### Faulkner Planetarium

Now Showing!



Visit the Herrett Center Video [Vault](#)

## About the Magic Valley Astronomical Society

Magic Valley Astronomical Society  
550 Sparks St.  
Twin Falls, ID

The Magic Valley Astronomical Society (MVAS) was founded in 1976. The Society is a non-profit [501(c) 3] educational and scientific organization dedicated to bringing together people with an interest in astronomy.

In partnership with the Centennial Observatory, Herrett Center, College of Southern Idaho - Twin Falls; we hold regularly scheduled monthly meetings and observation sessions, at which we share information on current astronomical events, tools and techniques for observation, astrophotography, astronomical computer software, and other topics concerning general astronomy. Members enthusiastically share their telescopes and knowledge of the night sky with all who are interested. In addition to our monthly public star parties we hold members only star parties at various locations throughout the Magic Valley.

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

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

### **Annual Membership dues will be:**

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

Contact Treasurer Jim Tubbs for dues information via e-mail: [jtubbs015@msn.com](mailto:jtubbs015@msn.com)

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

### **Membership Benefits:**

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



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