Snake River Skies

The Newsletter of the Magic Valley Astronomical Society — *October 2022*

Membership Meeting
Saturday Oct 8th 2022 at 7:00p at the Herrett Center - CSI Campus

Centennial Observatory
See Inside for Details

Faulkner Planetarium
See Inside for Details

www.mvastro.org

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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

Happy October All:

There are a few things on my mind this month.

First, to satisfy our VP and fellow associate Jay Hartwell, I ordered an Artemis Launch Tee to celebrate the soon-to-blast-off … ha ha ha. Now I hear that IF it happens, IT won't be until sometime in November. Should I put a ? by that ? Anyway, I did watch the successful launch of the SpaceX Falcon9 rocket of three astronauts and one cosmonaut for the ISS station on Wed, Oct 5th. Very nice, without a hitch.

For our October monthly meeting, our program features Rob Mayer with "A Year in Pictures." And as mentioned in Sept's meeting, we may have a Fall Star party at the Jerome Gun Club just prior to the new moon. That would be Fri or Saturday Oct 21 or 22 with an 18 or 11% waning crescent. We will decide that at our meeting. I believe November's meeting will be our annual election night, and in December we'll have our Christmas Party.

I'd also like to mention that the James Webb Space Telescope keeps sending some of the most remarkable images. I encourage each of you to follow them on all the various websites: Space.com, NASA, etc. There has also been great coverage in each of our great periodicals, *Astronomy* and *Sky &Telescope* magazines. Please check them all out.

I really enjoy observing in the Fall. Galaxy hunting is a favorite of mine. The major planets and even Neptune are on display all night. We have three other significant events to highlight the evenings this Fall. Two major meteor showers promise to put on a good show, with the moon cooperating. First, the Orionids begin in early October but don't peak until the 21st. A total Lunar Eclipse takes us to November the 8th, and the Leonid meteor shower lights up the sky during mid-November nights.

Hope everyone is safe and sound. Hope to see you at our Oct meeting the 8th at 7pm at the Herrett Ctr Library.

All the best,
Gary Leavitt, MVAS Pres.

October 2022 Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
2	**3**	**4**	**5**	**6**	**7**	**1/8**
	First Qtr Moon  Visible 56% ↑ Age: 7.92 Days			**Draconid → Meteor → Shower → Oct 8th →** see Calendar of Events	**BSU 1st Friday Physics** see Calendar of Events	**MVAS Meeting** 7:00 pm Herrett Ctr, CSI campus see Calendar of Events
9	**10**	**11**	**12**	**13**	**14**	**15**
Hunter's Moon 2:54 pm MDT  Age: 14.37 Days						
16	**17**	**18**	**19**	**20**	**21**	**22**
	Last Quarter Moon  Visible: 52% ↓ Age: 21.96 Days		**"The Fast Radio Sky"** FREE Silicon Valley Astro Lecture Series see Calendar of Events		**Orionid Meteor Shower Peak** see Calendar of Events	
23	**24**	**25**	**26**	**27**	**28**	**29**
		New Moon  Visible 0% Age: 0.04 Days				
30	**31**					

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Calendar of Events

Friday, Oct 7 Boise State Physics First Friday Astronomy

Prof. Guy Worthey, Washington State University, https://physics.wsu.edu/people/faculty/g-worthey/
"Light Detecting: Solving the Mystery of Galaxy Formation"

In-person Lecture begins 7:30 pm (MT), in the Multi-purpose Classroom Bldg on BSU campus, right across the plaza from the Education Building (map of campus),
OR online on the BSU Astronomy YouTube channel: http://boi.st/astrobroncoslive

If you missed this presentation, you can view it and previous lectures on the BSU Astronomy YouTube channel.

Sept 2, 2022	Prof. Matthew Pasek, University of South Florida An Expectation of Aliens
Aug 5, 2022	Prof. Katie Devine, College of Idaho, Mathematics & Physical Sciences The PERYSCOPE Project – Involving Astronomy Students in Star Formation Research
Jul 1, 2022	Dr. Alejandro Soto, Southwest Research Institute, Planetary Science Directorate Dust Storms on Mars

Saturday October 8 MVAS Meeting

This month's meeting (starting at 7:00pm at the Herrett Center Library) will feature one presentation featuring Rob Mayer with "A Year in Pictures." We'll probably discuss the October Star Party at the Jerome Gun Club.

Saturday October 8 Draconid Meteor Shower

The Draconid meteor shower is the first of two showers you can watch this month. Details are on the Earth & Sky website. The waxing moon will interfere with optimal viewing this year, but the night of Oct 8th will be better than Oct 9th. The radiant (point from which the meteors originate) is depicted in a lovely graphic on the Earth & Sky site. Unlike many meteor showers, the Draconids are more abundant in the evening rather than the early morning. Though as meteor showers go, this is a slow show. Very rarely does one see "hundreds of meteors in an hour."

Sunday, October 9 Full Hunter's or Blood Moon

"Humans through the ages have always found autumn's full moons to be creepy, and not without good reason. This full moon rises early in the evening, which means you're more likely to see it near the horizon, giving both the illusion of a larger moon and, thanks to the thicker atmosphere along the horizon scattering blue light and letting more red light through, painting the moon reddish. While there are 'spooky' associations between October's Full Moon and Halloween, it rarely rises on Halloween night itself. The next time you'll see this is in 2035." Read the full story of the Full Hunter's Moon on the MoonGiant website. On an Ojibwe website, their name for this moon is Binaakwe-giizis or Falling Leaves Moon.

Wednesday October 19 FREE Online Astronomy Lecture "The Fast Radio Sky"

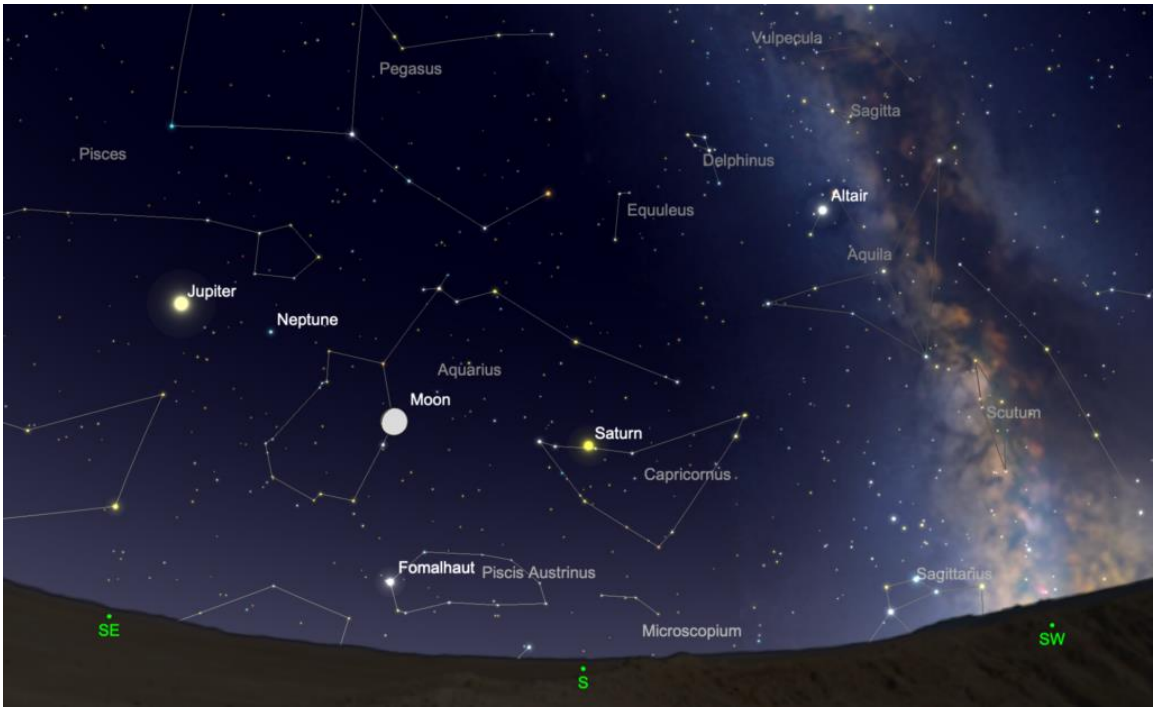
Tune in to YouTube at 7:00pm (PST) to watch the Silicon Valley Astronomy Lecture Series (use this link on 10/19 to watch lecture) for October - "The Fast Radio Sky: A New Window on the Violent Universe" with Prof. Victoria Kaspi, who holds the Lorne Trottier Chair in Astrophysics and Cosmology at McGill University, Canada. She "uses techniques of radio and X-ray astronomy to study pulsars, neutron stars, and magnetars, all representing the last stage in the life of stars significantly more massive than our Sun." For her lecture, Prof Kaspi will "describe the Fast Radio Burse phenomenon and explain how an innovative new Canadian radio telescope, CHIME, is making huge progress in unravelling these mysterious cosmic events." I'm on the emailing list for the SETI Institute and received an email about this lecture.

Friday October 21 Orionid Meteor Shower

The second meteor shower this month is the ever popular Orionids. Details for this are also on the Earth & Sky website. Occurring between the last quarter and the new moon, this meteor shower should be amazing this year. Look below (p. 7) for a great illustration of the radiant from Brian Ventrudo's Cosmic Pursuits for October. He tells us, "They usually show as many as 20-40 fast-moving meteors per hour in a dark sky." And, as usual for these showers, the greatest activity will be seen "between midnight and dawn."

"Cosmic Pursuits" for October

Please read Brian Ventrudo's complete Cosmic Pursuits for October where you can read about these beautiful images.

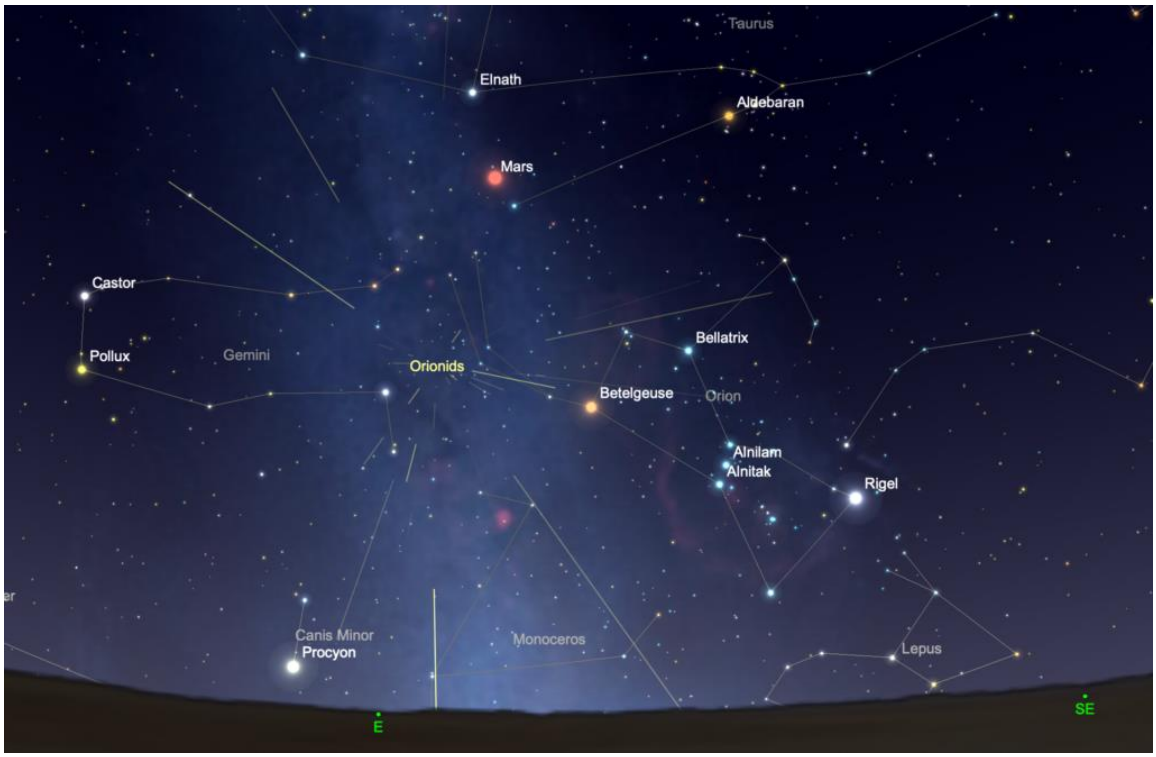


"A gibbous Moon lies between Jupiter and Saturn on the evening of Oct 6, 2022"

image produced using SkySafari 6 Plus software

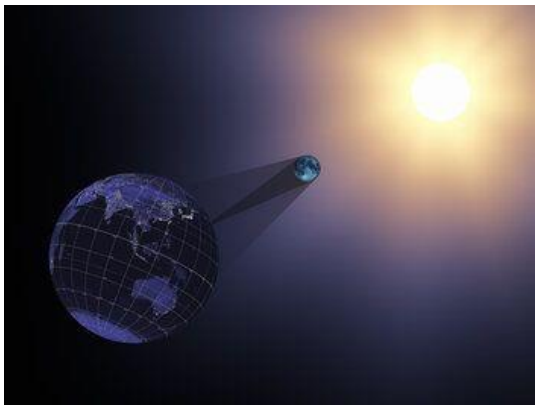
"The radiant of the Orionids meteor shower."

image produced using SkySafari 6 Plus software



NASA NEWS and MORE

ECLIPSE AMBASSADORS



Some of you may have read Prof Brian Jackson's post about Eclipse Ambassadors on our Groups.io site. In case you missed it, here are the highlights:

Vivian White, who is with the Astronomical Society of the Pacific and the NASA Night Sky Network, sent out an announcement for the NASA-funded program "Eclipse Ambassadors Off the Path." They are hosting a Pilot Workshop this fall to start. YOU can apply to become a NASA Partner Eclipse Ambassador and learn how to "prepare your community for two solar eclipses that will soon cross North America: an annular eclipse [ring of fire] on Oct 14, 2023, followed by a total eclipse on Apr 8, 2024." There is No Deadline for Applications. However, the initial announcement was made on Aug 11th, and, according to the official website, "We will be accepting applications until we have made at least 500 partnerships across the country."

NASA has an Eclipse website that includes countdown clocks for the upcoming eclipses and so much more.

Vivian also shared, "if you would like a set of 50+ Eclipse Ambassadors Solar Viewers for club recruiting at conferences or your local colleges, you are welcome to request them here."

ARTEMIS I – LAUNCH DELAYED UNTIL FURTHER NOTICE

As you've heard, Artemis I did not launch in September. And then Hurricane Ian whomped the stuffing out of Florida, causing tragic and widespread destruction across the state. According to an Oct 6th NASA Artemis press release, they are inspecting the vehicles and the launch site prior to announcing a new launch date. "Although the Kennedy area received minimal impacts from Hurricane Ian, many team members who live farther west experienced larger effects from the storm and are still recovering. Managers are working with teams to ensure they have the time and support needed to address the needs of their families and homes."

MARS 2020 – NOMINATE A STUDENT WITH PERSEVERANCE

According to the official NASA website, "The "You've Got Perseverance!" opportunity is for students [in grades 6 thru 12] who have demonstrated perseverance in their academic pursuits. Teachers, educators, and community leaders are encouraged to nominate students who've shown that nothing will deter them from their educational journey. NASA's Perseverance mission team is no stranger to challenges, as the team has faced and overcome many hurdles to get the rover to Mars. The team wants to encourage students to persevere, to embrace the idea of not giving up when things get tough and to overcome seemingly impossible challenges. We want to hear how your students persevered!"

For students that are selected, they will

(1) get a special message sent to them from the Perseverance rover on Mars!
(2) chat with rover team members from mission control at NASA's Jet Propulsion Laboratory
(3) get an award pack of materials with mission essentials

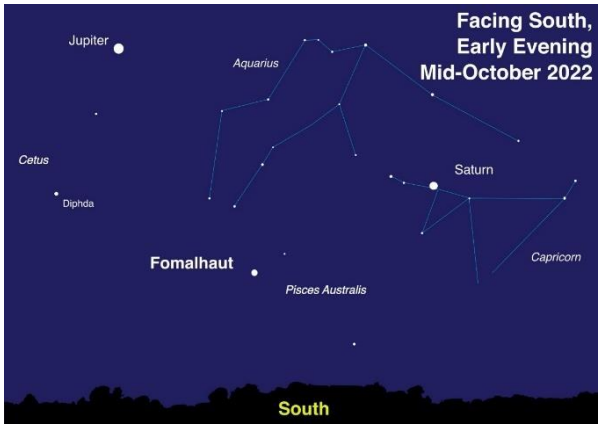
"The nominator must be an educator, principal, school counselor or community leader (no parent, grandparent, or student submissions)." The full nomination rules and nomination form are on the website.

Fomalhaut: Not So Lonely After All

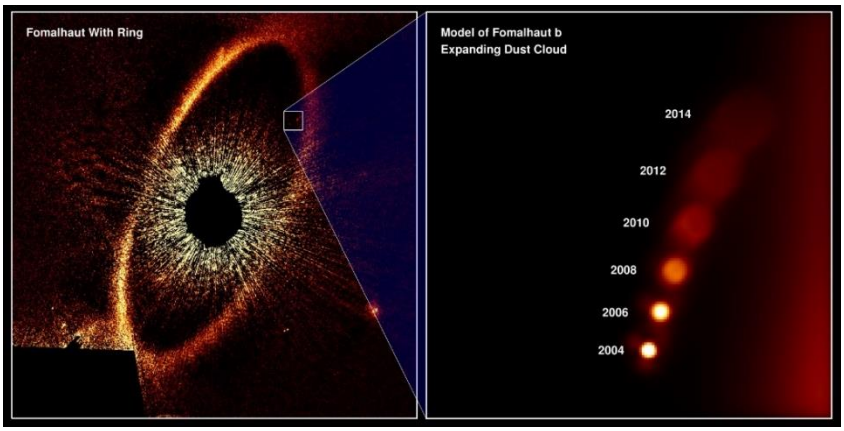
by David Prosper

For Northern Hemisphere observers, Fall evenings bring a prominent visitor to southern skies: the bright star **Fomalhaut**! Sometimes called "The Autumn Star," Fomalhaut appears unusually distant from other bright stars in its section of sky, leading to its other nickname, "The Loneliest Star." Fomalhaut appears low and lonely over the horizon for many observers, and yet it shines so bright and often wildly twinkles from atmospheric turbulence; thus this brief but bright seasonal star often inspires a few startled UFO reports. At a distance of 25 light years from us, this star has been extensively studied and is a fascinating, and very real, stellar object.

At RIGHT is a sky map of the southern facing sky for mid-latitude Northern Hemisphere observers (Illustration created with assistance from Stellarium).



Though Fomalhaut appears solitary, it does in fact have company. Its entourage includes two stellar companions, both of which keep their distance but are still gravitationally bound. Fomalhaut B (aka TW Piscis Austrini, not to be confused with former planetary candidate Fomalhaut b[1]), is an orange dwarf star almost a light year distant from its parent star (Fomalhaut A). Fomalhaut C (aka LP 876-10) is a red dwarf star located a little over 3 light years from Fomalhaut A. Surprisingly far from its parent star, even as viewed from Earth, Fomalhaut C lies in the constellation Aquarius, while Fomalhaut A and B lie in Piscis Australis, a different constellation. Studies of Fomalhaut C confirm it as the third stellar member of the Fomalhaut system, its immense distance still within Fomalhaut A's gravitational influence. So, while not truly "lonely," Fomalhaut A's companions do keep their distance.



Fomalhaut's most famous feature is a magnificent and complex disc of debris spanning many billions of miles in diameter (left); the path and dissolution of former planetary candidate Fomalhaut b is shown in detail (right) (credit: NASA, ESA, A.Gáspár & G.Rieke Univ of AZ). This disc was first detected by NASA's IRAS space telescope in the 1980s, and first imaged in visible light by Hubble in 2004. Studies by additional advanced telescopes, based both on Earth's surface and in space, show the debris around Fomalhaut to be differentiated into several "rings" or "belts" of different sizes and types of materials. Complicating matters further, the disc is not centered on the star itself, but on a point approximately 1.4 billion miles away, or half a billion miles further from Fomalhaut than Saturn is from our own Sun! In the mid-2000s a candidate planetary body was imaged by Hubble and named Fomalhaut b. However, Fomalhaut b was observed to slowly fade over multiple years of observations, and its trajectory appeared to take it out of the system, which is curious behavior for a planet. Scientists now suspect that Hubble observed the shattered debris of a recent violent collision between two 125-mile wide bodies, their impact driving the remains of the now decidedly non-planetary Fomalhaut b out of the system! Interestingly enough, Fomalhaut A isn't the only star in its system to host a dusty disc; Fomalhaut C also hosts a disc, detected by the Herschel Space Observatory in 2013. Despite their distance, the two stars may be exchanging material between their discs - including comets! Their co-mingling may help to explain the elliptical nature of both of the stars' debris discs. The odd one out, Fomalhaut B does not possess a debris disc of its own, but may host at least one suspected planet.

While Hubble imaged the infamous "imposter planet" of Fomalhaut b, very few planets have been directly imaged by powerful telescopes, but NASA's James Webb Space Telescope will soon change that. In fact, Webb will be imaging Fomalhaut and its famous disc in the near future, and its tremendous power is sure to tease out more amazing discoveries from its dusty grains. You can learn about the latest discoveries from Webb and NASA's other amazing missions at nasa.gov.

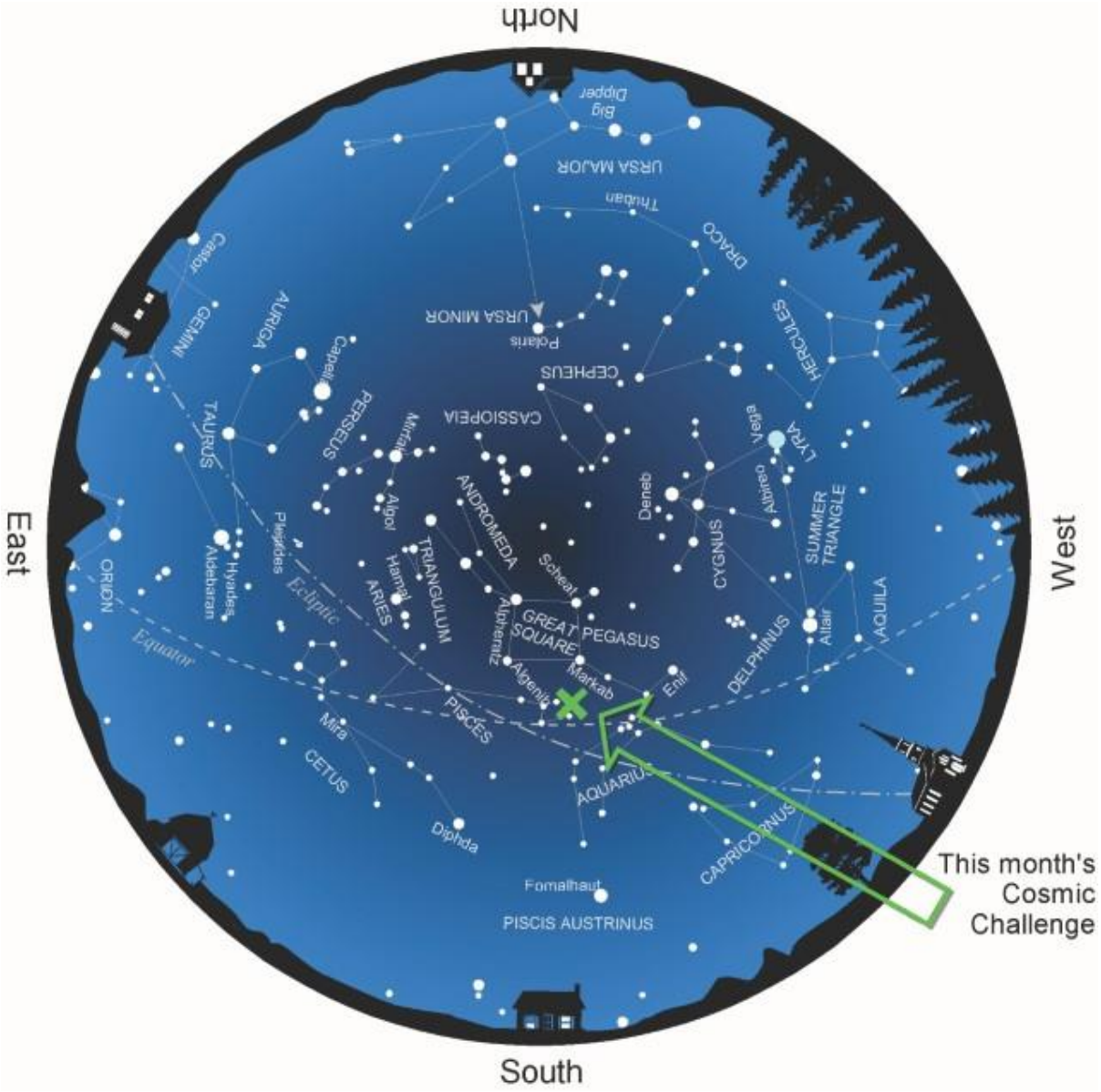
[1] Astronomers use capital letters to label companion stars, while lowercase letters are used to label planets

NGC 7537 and NGC 7541

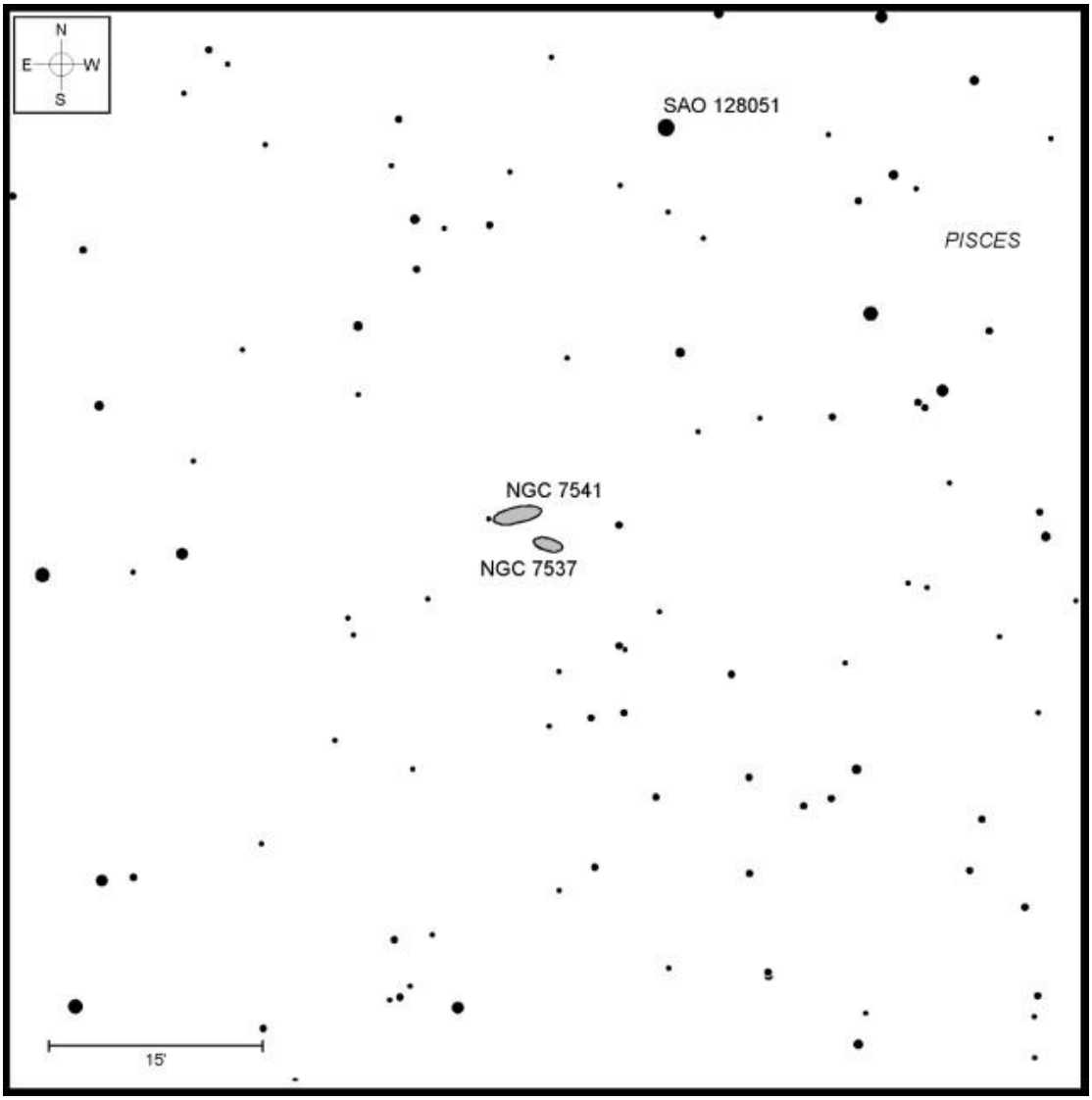
	6- to 9.25-inch (15-24 cm) telescopes

Target	Type	RA	DEC	Constellation	Magnitude	Size
NGC 7537	Galaxy	23h 14.6m	+04° 29.9'	Pisces	13.2	2.2' x 0.5'
NGC 7541	Galaxy	23h 14.7m	+04° 32.0'	Pisces	11.7	3.5' x 1.2'

NGC 7537 and NGC 7541 are two of the more visually interesting galaxies that hide among the faint stars of Pisces, the Fishes. Only 3 arcminutes separate these nearly edge-on spirals, creating an attractive pair of faint fuzzies that float in a field of dim stars.



October late evening star map, adapted from Star Watch by Phil Harrington



Finder chart for this month's Cosmic Challenge, adapted from Cosmic Challenge by Phil Harrington
Click on the chart to open a printable PDF version in a new window

Both galaxies are nestled in the far southwestern corner of Pisces, not far from 4th-magnitude Gamma (γ) Piscium, the brightest star in the Circlet of Pisces asterism. The Circlet, a five-star pentagon marking the constellation's western fish, can be found south of the Great Square of Pegasus. Depending on your local light pollution level, you might need some optical help to make out the Circlet; spanning 6° side-to-side, it should just cram into the field of most finderscopes.

Aim your telescope toward yellowish Gamma and then look about 2° to its northwest for a wide pair of 7th-magnitude stars. The western star of the pair shines with a golden glint, while the eastern star (SAO 128051) has a bluish tinge. Our challenge is found about three-quarters of the way between Gamma and the pair's eastern sun. Look for the galaxies just east of an 11th-magnitude field star.

NGC 7541 is the big kid on the block, appearing brighter and larger than its neighbor. My 8-inch reflector at 118x reveals a long, very thin spike of light oriented almost exactly east-west. A 12.5-magnitude Milky Way star shines just beyond the galaxy's eastern tip. Don't be fooled into thinking you've discovered a supernova if you spot it.

Back in 1998, however, a supernova was spotted in NGC 7541 by astronomers using the Katzman Automatic Imaging Telescope, or KAIT. The KAIT, part of the Lick Observatory complex on Mount Hamilton near San Jose, California, is a fully automated 30-inch Cassegrain reflector designed specifically to search for extragalactic supernovae and other transient phenomena. Since dedicated in 1996, KAIT has been the backbone of the Lick Observatory Supernova Search, discovering nearly 1,000 supernovae -- indeed, when you read this, that remarkable number may have been exceeded. NGC 7541 supernova's, designated SN1998dh, only reached 15th magnitude, keeping it well below the threshold of visibility for all but the largest amateur instruments.

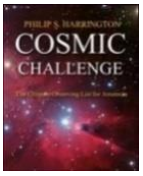
Subsequent studies showed that SN1988dh was a Type Ia supernova. In very broad terms, supernovae can be divided into two categories, Type I and Type II, with the former further refined into Types Ia, Ib, and Ic. Type Ia supernovae occur in binary star systems where one of the system's members is a white dwarf star. White dwarfs are the end result of a star that has used up all of its fuel and has collapsed under the crushing influence of gravity. If a white dwarf lies close enough to a partner star in a binary system, mass may be transferred between the two. As material is shifted from the companion star to the white dwarf, the increase in pressure and density raises the temperature of its core. If enough mass is transferred, then the white dwarf may exceed its maximum mass limit, the Chandrasekhar limit, of about 1.4 times the current mass of our Sun. When that happens, the crushing effect is overwhelming, causing the white dwarf to detonate violently.

Sketch of NGC 7537 and NGC 7541 as seen through the author's 8-inch (20-cm) Newtonian reflector at 118x.

NGC 7537 lies in the same field as NGC 7541, but its smaller size and fainter nature presents us with a greater challenge. Indeed, when I first spotted NGC 7541 through my 8-inch reflector many years ago under only mediocre skies, NGC 7537 was nowhere to be found. Sometime later under better viewing conditions, the same telescope detected the missing galaxy as an exceedingly faint, oval glow. NGC 7537 is also oriented east-west, tilted slightly askew to its more prominent neighbor.

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 website or post to this month's discussion forum.

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, including Cosmic Challenge: The Ultimate Observing List for Amateurs.
Visit his website at www.philharrington.net to learn more.

Edited & formatted by Loretta J Cannon, Science Writer-Editor.

Dave Mitsky's Celestial Calendar

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

10/1 Mercury is stationary at 15:00
10/2 Mercury is at the ascending node today
10/3 First Quarter Moon occurs at 00:14
10/4 The Moon is at perigee, subtending 32' 21" from a distance of 369,325 kilometers (229,488 miles), at 16:34; the Lunar X, also known as the Purbach or Werner Cross, an X-shaped clair-obscur illumination effect involving various rims and ridges between the craters La Caille, Blanchinus, and Purbach, is predicted to be visible at 18:45
10/5 The Moon is 4 degrees south of Saturn at 16:00
10/6 Mercury is at perihelion today
10/7 Asteroid 4 Vesta is stationary at 6:00
10/8 The north pole of Mars is now visible; the Moon is 3 degrees south of Neptune at 3:00; the Moon is 2 degrees south of Jupiter at 18:00; the dwarf planet Pluto is stationary at 18:00; Mercury is at greatest western elongation (18 degrees) at 21:00
10/9 Full Moon, known as the Blood or Sanguine Moon, occurs at 20:55
10/12 The Moon is 0.8 degrees north of Uranus, with an occultation taking place in Scandinavia, Iceland, Greenland, the northern portion of Russia, most of Canada, western United States including Alaska, and northwestern Mexico, at 7:00; a double Galilean shadow transit begins at 14:43
10/15 The Moon is 4 degrees south of Mars at 5:00
10/17 Mercury is at its greatest heliocentric latitude north today; the Moon is at apogee, subtending 29' 33" from a distance of 404,326 kilometers (251,326 miles), at 10:20; the Moon is 1.8 degrees south of the first-magnitude star Pollux (Beta Geminorum) at 16:00; Last Quarter Moon occurs at 17:15
10/18 The Curtiss Cross, an X-shaped clair-obscur illumination effect located between the craters Parry and Gambart, is predicted to be visible at 10:50; Venus is at greatest eastern elongation (47 degrees) at 19:25
10/19 Asteroid 3 Juno is stationary at 00:00; a double Galilean shadow transit begins at 17:19
10/20 Mars is at the ascending node today
10/21 The apparent brightness of Mars exceeds magnitude -1.0 today; the peak of the Orionid meteor shower (a zenithal hourly rate of 20 per hour) is predicted to occur at 18:00
10/22 Venus is in superior conjunction at 21:00
10/23 Saturn is stationary at 9:00
10/25 A partial solar eclipse visible from parts of Russia, India, southwestern Asia, the Middle East, northeastern Africa, and most of Europe occurs today; New Moon (lunation 1235) occurs at 10:49
10/26 A double Galilean shadow transit begins at 20:20
10/29 The Moon is at perigee, subtending 32' 27" from a distance of 368,291 kilometers (228,845 miles), at 14:36
10/30 The apparent diameter of Mars exceeds 15.0" today; the Moon is at its southernmost declination (−27.5 degrees) at 1:00; Mars is stationary at 11:00

Happy Birthdays in October

I looked these up for you. I encourage you to 'google' these folks for their contributions to astronomy. *-your Editor*

Oct 5th Neil deGrasse Tyson (1958-now)
Oct 8th Ejnar Hertzsprung (1873-1967)
Oct 15th Thomas Bopp (1949-now)
Oct 24th Steven J Dick (1949-now)
Oct 25th David Schramm (1945-1977)
Oct 6th Meghnad Saha (1893-1956)
Oct 15th Asaph Hall (1829-1907)
Oct 19th Subrahmanyah Chandrasekhar (1910-1995)
Oct 25th Henry Norris Russell (1877-1957)
Oct 29th Edmond Halley (1656-1742)

On this date in history . . .

Oct 1, 1847: Maria Mitchell discovered Comet C/1847 T1 (Miss Mitchell's Comet).

Oct 5, 1923: Edwin Hubble discovered Cepheid variable stars in M31 (the Andromeda Galaxy).

Oct 6, 1995: Michel Mayor and Didier Queloz announced the discovery of the exoplanet 51 Pegasi b (Dimidium).

Oct 9, 1604: Supernova SN 1604 (Kepler's Supernova) became visible to the naked-eye.

Oct 10, 1846: William Lassell discovered Triton, Neptune's brightest satellite.

Oct 13, 1773: M51a (the Whirlpool Galaxy) was discovered by Charles Messier.

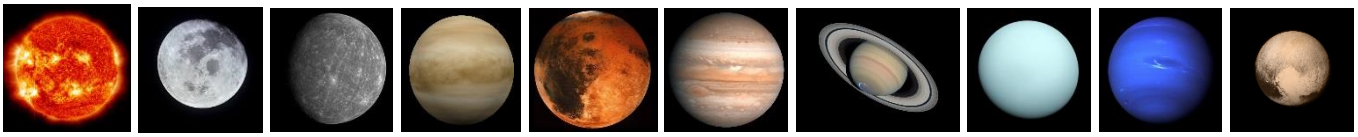
Oct 18, 1847: Asteroid 8 Flora was discovered by John Russell Hind.

Oct 18, 1977: Charles Kowal discovered 2060 Chiron, the first Centaur asteroid.

Oct 22, 2136 BCE: The first recorded solar eclipse took place on this date.

Oct 24, 1851: Two of the satellites of Uranus, Ariel and Umbriel, were discovered by William Lassell.

Oct 25, 1671: Giovanni Cassini discovered Saturn's odd satellite Iapetus.



The Sun, the Moon, & the Planets

The **Sun** is located in Virgo on October 1st at 0:00 UT. It enters Libra on October 31st.

The **Moon** is 4.9 days old, subtends 32.0 arc minutes, is illuminated 26.5%, and is located in Scorpius on October 1st at 0:00 UT. The Moon reaches its greatest northern declination (+27.4 degrees) on October 16th and its greatest southern declination (-27.4 degrees) on October 3rd and (-27.5 degrees) on October 30th. Longitudinal libration is at a maximum of +5.5 degrees on October 11th and a minimum of -5.0 degrees on October 24th. Latitudinal libration is at a maximum of +6.7 degrees on October 5th and a minimum of -6.8 degrees on October 19th. Favorable librations for the following lunar features occur on the indicated dates: Crater Shi Shen on October 7th, Crater Dugan on October 8th, Crater Hausen on October 20th, and Crater Andersson on October 22nd. New Moon occurs on October 25. The Moon is at perigee on October 4th and at apogee on October 17th. The Moon passes near the bright open cluster M45 (the Pleiades or Subaru) in Taurus at 7:00 on October 13th, near the first-magnitude star Aldebaran (Alpha Tauri) at 00:00 on October 14th, near the bright open cluster M35 in Gemini at 21:00 on October 15th, near the first-magnitude star Castor (Alpha Geminorum) in Cancer at 11:00 and the first-magnitude star Pollux (Beta Geminorum) at 17:00 on October 17th, near the bright open cluster M44 (the Beehive or Praesepe) in Cancer at 21:00 on October 18th, near the first-magnitude star Regulus (Alpha Leonis) at 18:00 on October 20th, and near the first-magnitude star Antares (Alpha Scorpii) at 5:00 on October 28th. The Hesiodus Lunar Light Ray is predicted to be visible starting at 10:15 on October 4th. The Moon occults Uranus from certain parts of the world on October 12th and Eta Leonis (magnitude +3.5) on October 20th.

DETAILS for the Planets are *missing* from Dave Mitskey's October 2022 Celestial Calendar

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

Brightness, apparent size, illumination, distance from the Earth in astronomical units, and location data for the planets and Pluto on October 1st: Mercury (magnitude +1.4, 8.9", 16%, 0.76 au, Virgo), Venus (magnitude -3.9, 9.8", 99%, 1.71 au, Libra), Mars (magnitude -0.6, 11.9", 88%, 0.78 au, Virgo), Jupiter (magnitude -2.9, 49.8", 100%, 3.96 au, Capricornus), Saturn (magnitude +0.5, 18.1", 100%, 9.17 au, Capricornus), Uranus (magnitude +5.6, 3.8", 100%, 18.78 au, on October 16th, Aries), Neptune (magnitude +7.8, 2.4", 100%, 29.04 au, on October 16th, Aquarius), and Pluto (magnitude +14.4, 0.1", 100%, 34.55 a.u. on October 16th, Sagittarius).

For more on the planets and how to locate them, browse Naked Planets.

Information on passes of the ISS, the USAF's X-37B, the HST, Starlink, and other satellites can be found at Heavens Above.

The **zodiacal light** may be visible in the pre-dawn eastern sky from a dark site for roughly the last third of the month. Articles on the zodiacal light appear at https://atoptics.co....ighsky/zod1.htm and https://earthsky.org...t-or-false-dawn.

The minor **Draconid** (formerly the Giacobinid) **meteor shower** peaks on the night of October 8th but is severely compromised by a nearly Full Moon. The Draconids are quite variable and have produced meteor storms in 1933 and 1946. Comet 21P/Giacobini-Zimmer is the parent comet of the Draconids. The **Orionid meteor shower** peaks on the night of October 21st/22nd and is not seriously affected by a waning crescent Moon. Orionid meteors are fragments of Comet 1P/Halley, are very fast (67 km/sec), and are generally faint. The shower's radiant is located near the Club of Orion asterism.

The famous **eclipsing variable star Algol (Beta Persei)** is at a minimum, decreasing in brightness from magnitude +2.1 to magnitude +3.4, on October 2nd, 5th, 8th, 11th, 13th, 16th, 19th, 22nd, 25th, 28th, and 31st. Consult page 50 of the October 2022 issue of Sky & Telescope for the minima times.

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)

Notable **carbon star** for October: RZ Pegasi

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

Challenge deep-sky object for October: Jones 1 (PK104-29.1) (Pegasus)

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

Please access the Cloudy Nights site for many more details from Dave Mitsky.
https://www.cloudynights.com/topic/843789-october-2022-celestial-calendar/

Author Phil Harrington offers an excellent freeware planetarium program for binocular observers known as TUBA (Touring the Universe through Binoculars Atlas) at http://www.philharrington.net/tuba.htm

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

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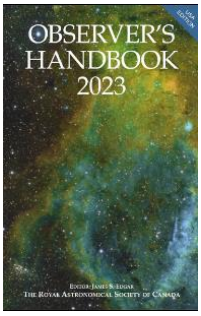
Dear Readers,

Hello Magic Valley Stargazers – this is becoming a habit. I am happy to share what I've done for the Boise Astronomical Society with you fine folks. There's a feature we have that you may wish to consider – our AL-Cor highlights two Observation Challenges each month from the Astronomical League site.

The Sky & Telescope site for October has some interesting articles. On the main page, you'll find "This Week's Sky at a Glance" and the Sky Tour podcast for October, "Make Way for Jupiter".

The monthly feature article by Bob King is about "Full Moon Fringe Benefits", in which he "reminds us of the many ways we can enjoy observing our humble satellite." One aspect of full moon observing of which I was unaware is that you can "see several limb-hugging lunar seas you may have ignored in the past – Humboldtianum, Astrale, Smythii, and Marginis." You folks don't know me, but I assure you that I am not aware of most aspects of lunar observations, though I admire those of you who are.

There's a sad article about the retirement of the well-known flying observatory. In "Sofia Airborne Observatory Has Taken Its Final Flight", we learn "the flying observatory has been grounded due to its lofty price-tag and questionable productivity, causing an outcry among astronomers." I was surprised that the article's author neglected to provide either the date of the observatory's first flight or the date of its last flight. We did learn that it was only in service for eight years.



RASC 2023 OBSERVER'S GUIDES

The Royal Astronomical Society of Canada puts out a fabulous observer's guide and more. The 2023 Observer's Handbooks (USA version) and Calendars are now available for PRE-ORDER from the Astronomical League's online store.

LOOK AT THIS !

On Sept 26th, Boise Astronomical Society club member L.Paul Verhage shared a stunning image of a line of Starlink satellites with the club. According to Paul, "I counted at least 47 satellites … in a trail around 30° long. … They disappeared at Cassiopeia, northbound." What I find most fascinating is that he took this image with his cellphone camera !

SPEAKING OF COMMUNICATION SATELLITES

Did you know that strong solar storms can knock those little communication satellites out of orbit? Well they can, and they did this last February. The Washington Post reported on 40 SpaceX satellites that "were knocked out a day after they launched." For those of you who are keeping track, that was "40 out of 49" satellites that fell out of the sky. It's believed they were incinerated upon atmospheric reentry. oops.

Loretta

The End

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 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.) set up at your location. All of our outreach programs are provided by MVAS volunteers at no cost. However, MVAS will gladly accept donations, which enable us to continue to 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 are just a few of the programs that your membership dues support.

Annual Membership dues are:
$20.00 for individuals or families, and $10.00 for students.
Contact Treasurer Jim Tubbs for dues information via e-mail: jtubbs015@msn.com

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

Lending Telescopes: The society currently has three telescopes for loan and would gladly accept others. Please contact President Gary Leavitt, 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.