

Volume 45.10

October 2025

# Desert Sky Observer

Antelope Valley Astronomy Club



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www.avastronomyclub.org

October 2025

## Upcoming Events

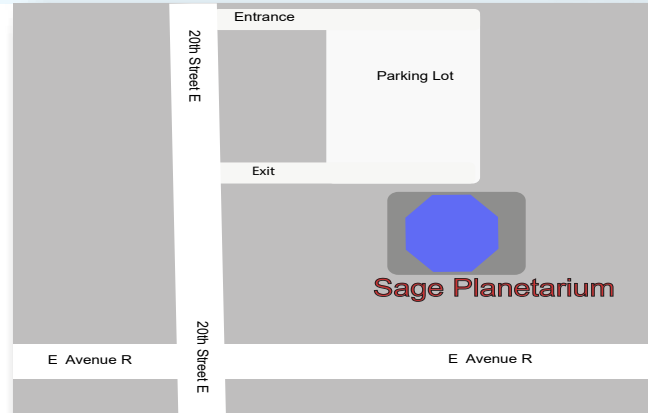
October 10: the Business Meeting  
October 18: DSSP @ Red Cliffs  
October 24: Star Party @ College of the Canyons  
October 25: Scary Science @ PDW  
MoonWalk at PDW @ 6:30pm,

Every clear night: Personal Star Party

November 8: Moodwalk @ PDW 6:30 pm  
November 14: Club Meeting  
November 22: DSSP @ TBD



AVAC Calendar



## Board Members

**President:** Phil Wriedt (661) 917-4874  
[president@avastronomyclub.org](mailto:president@avastronomyclub.org)

**Vice-President:** Matt Leone (661) 713-1894  
[vice-president@avastronomyclub.org](mailto:vice-president@avastronomyclub.org)

**Secretary:** Rose Moore (661) 972-1953  
[secretary@avastronomyclub.org](mailto:secretary@avastronomyclub.org)

**Treasurer:** Rod Girard (661) 803-7838  
[treasurer@avastronomyclub.org](mailto:treasurer@avastronomyclub.org)

**Director of Community Development:**  
Christian Amaya (661) 972-0091  
[community@avastronomyclub.org](mailto:community@avastronomyclub.org)

## Appointed Positions

**Newsletter Editor:** Phil Wriedt (661) 917-4874  
[dso@avastronomyclub.org](mailto:dso@avastronomyclub.org)

**Equipment & Library:**  
vacant  
[library@avastronomyclub.org](mailto:library@avastronomyclub.org)

**Club Historian:** vacant  
[history@avastronomyclub.org](mailto:history@avastronomyclub.org)

**Webmaster:** Steve Trotta (661) 269-5428  
[webmaster@avastronomyclub.org](mailto:webmaster@avastronomyclub.org)

**Night Sky Coordinator:**  
Rose Moore (661) 972-1953

**Astronomical League Coordinator:**  
Phil Wriedt (661) 917-4874  
[al@avastronomyclub.org](mailto:al@avastronomyclub.org)



## Monthly Meetings

Monthly meetings are held at the **S.A.G.E. Planetarium** in Palmdale, the second Friday of each month except December. The meeting location is at the northeast corner of Avenue R and 20<sup>th</sup> Street East. Meetings start at 7 p.m. and are open to the public. *Please note that food and drink are not allowed in the planetarium.*

## Membership

Membership in the Antelope Valley Astronomy Club is open to any individual or family.

The Club has three categories of membership.

- Family membership at \$30.00 per year.
- Individual membership at \$25.00 per year.
- Junior membership at \$15.00 per year.

Membership entitles you to ...

- The Desert Sky Observer -- monthly newsletter
- The AVAC Membership Manual.
- To borrow club equipment, books, videos, and other items.

AVAC  
PO Box 8545  
Lancaster, CA 93539-8545



Visit the Antelope Valley Astronomy Club website at [www.avastronomyclub.org/](http://www.avastronomyclub.org/)  
[www.instagram.com/av\\_astronomyclub](https://www.instagram.com/av_astronomyclub)

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

The Antelope Valley Astronomy Club, Inc. is a  
26 USC §503(c)(3) California Non-Profit Corporation.

## President's Message

By Phil Wriedt

Hi there,

On the 10th of October, we will be holding our Annual Business Meeting and the election of offices for 2026. We really need as many members there as possible. The Club's Constitution and By-laws require that there be a quorum of at least 10 members to hold the election. No one will be drafted to fill a position without their accepting the nomination. If you wish to nominate yourself, contact any Board member.

After the election we will have a round table discussion on what the direction of the Club next year will be. What activities we will participate in, star parties, etc. Jeremy won't be at the meeting, but has arranged for someone to let us in and hold the meeting, which means that more than likely there will not be a show or videos, not unless Jeremy leaves the computers on.

Our last Dark Sky Star Party was at Chuchupate on September 20th. Weather predictions suggested that it would be cloudy with a chance of rain. It wasn't. I couldn't convince myself to drive up there only to be clouded out. Five members did make the trip and had a good time. Our next DSSP will be at Red Cliffs on October 18th, three days before the New Moon (sets at 4:52pm).

Our next Moonwalk is on October 25th, Scary Science will be that afternoon. Sunset is at 6:04 pm and astronomical dusk is late at 7:30 pm. Mars will be up till 7:05 pm. Saturn will rise at 4:32 pm, transit at 11:23 pm, and the Moon will set at 8:35 pm; get there early so you can set up in daylight. If you have a telescope bring it, or if not, just come join the party at Prime Desert Woodland; the more members there, the better it will be. We had 68 visitors on the Walk last month. Don't forget warm clothes, jackets, gloves, etc., it's October, but be prepared. There is still a small chance that a cold rain front could come through. Hopefully it will be a cloudless (and smokeless) night.

On September 27th the Lunar Club met for the last time this year. Of course the Moon was there, but clouds came too, and we just gave up after 45 minutes playing hide and seek. On October 24th (the day before the Scary/Spooky Science Moonwalk) we will participate in the College of the Canyons Fall Star Party. Watch for the email for more information when it becomes available.

Woodland Hills Camera (one of our sponsors), came through with a ZWO Seestar S50 telescope for the Grand Prize for our Christmas Party on December 6th. Sign up on the AVAC website.

Please come to these events, join the crowd! The more the merrier!

Keep Looking Up, Phil

## On The Cover

Note: North is 22.0° right of vertical RA: 2h 38' 11.71" DEC: -1° 19' 7.04" Mag: 12.2 120Mly (Cetus)

*This stunning image from Hubble shows the majestic galaxy NGC 1015, found nestled within the constellation of Cetus (The Whale) 118 million light-years from Earth. In this image, we see NGC 1015 face-on, with its beautifully symmetrical swirling arms and bright central bulge creating a scene akin to a sparkling Catherine wheel firework.*

*NGC 1015 has a bright, fairly large centre and smooth, tightly wound spiral arms and a central "bar" of gas and stars. This shape leads NGC 1015 to be classified as a barred spiral galaxy — just like our home, the Milky Way. Bars are found in around two-thirds of all spiral galaxies, and the arms of this galaxy swirl outwards from a pale yellow ring encircling the bar itself. Scientists believe that any hungry black holes lurking at the centre of barred spirals funnel gas and energy from the outer arms into the core via these glowing bars, feeding*

[continued on page 5](#)

## From the Secretary

By Rose Moore

Members:

We start off October with our club meeting on Friday October 10th, our Annual Business Meeting! We need members to attend to help nominate a new Board, and to bring up and discuss any changes, new ideas, or thoughts you may have on the club. We will need a minimum of 10 memberships to vote. As Jeremy will not be in attendance for this meeting, the Board will notify members on plans for after the business part of the meeting.

Our Dark Sky Star Party will be on Saturday October 18th. We will be having our Star Party at Red Cliffs. More information coming prior to the event.

The AVAC will be participating in the College of the Canyons Fall Star Party on Friday October 24th, from 6:00pm to 9:30pm. We need members with telescopes to help out at this event. The speaker for the evening will be Dr. Athina Peidou, a scientist at JPL. Her topic will be 'Monitoring the Global Water Cycle with the GRACE-FO Missions'. There will be faculty and student presentations, demonstrations, and food will be available for purchase. More information coming prior to the event.

On Saturday October 25th, Jeremy will be conducting 'Spooky Science' at the Clifford Center prior to the Moon Walk; location will be at the Prime Desert Woodland Preserve. This is from 3:00-5:00pm. This is open to children and adults, and is free.

The Prime Desert Moon Walk follows Jeremy's 'Spooky Science' on Saturday October 25th, starting at 6:30pm, weather permitting. We will need members with telescopes for this event. Set up time is 30-45 minutes prior to the event. There will be a small waxing crescent Moon that will set at 8:35pm.

Our Christmas Party is on for Saturday December 6th at Gino's Restaurant in Lancaster. Our buffet dinner will be chicken parmigiana, penne pasta primavera, lasagna with meat sauce, garden salad, garlic bread, dessert, ice tea, coffee, and sodas. Alcoholic drinks are extra. Cost will be \$35 per adult and \$17.50 per child 12 and under. You may pay at October or November's meeting with cash or check to our treasurer Rod; or you may pay via the PayPal link (also for credit cards) on the club's website. Please let one of the Board members know if you are coming to the party as we need an accurate head count by December 1st. If any questions contact one of the Board members.

Happy Halloweenie! Rose



## Vice President's Report

By Matt Leone

Hi

We need everyone to please make the October business meeting. I am old school and have a terrible time on the computer. We need a savvy person who can go online to find and communicate with speakers, the day of calling someone up is over.

Getting back to the Moon we have a Lunar club meeting at prime desert September 27. Unfortunately, the weather was not cooperative, although we tried to go forward with it. Chuchupate was not a bad night, on the 20 of September; 7 members showed up, the sky came and went and cleared up around 11 pm. The next star party is October 18 at Red Cliffs, praying for a clear night; I'm planning to go and show up in my new painted motor home. I believe there are going to be a comet or two flying through the sky. Saturn will be in opposition this month so it will be as good as it gets. Jupiter should be up around 3 am for those who stay up late.

See you at the meeting on the 10th and let us have a great showing of members.

Matthew Leone.

## Corrections to the "Dark Sky Site" handout at the September 12th AVAC meeting by Rod Girard.

At our last meeting I gave out nine copies of my Dark Sky Site paper. In my haste to get this handout printed I failed to notice two mistakes in the M51, Whirlpool Galaxy section. Please make the following corrections:

- In the sentence segment, "NGC5195, passed through NGC5194 approximately 70,000 years ago,"  
change to: (70,000 years) to (70 million years).
- In the sentence, "NGC5195 is now moving away from NGC5194 in an elliptical orbit and is estimated to be 500,000 light years behind NGC5195.",  
change to: (500,000 light years) to (50,000 light years). The published spread of this estimated distance is 31 - 100,000 light years.

Thank you for your understanding.

## On The Cover ... continued

*the black hole, fueling star birth at the centre and building up the galaxy's central bulge.*

*In 2009, a Type Ia supernova named SN 2009ig was spotted in NGC 1015 — one of the bright dots to the upper right of the galaxy's centre. These types of supernovae are extremely important: they are all caused by exploding white dwarfs which have companion stars, and always peak at the same brightness — 5 billion times brighter than the Sun. Knowing the true brightness of these events, and comparing this with their apparent brightness, gives astronomers a unique chance to measure distances in the Universe.*

*Credit: ESA/Hubble & NASA, A. Riess (STScI/JHU)*

News from around the Net

### **NASA's VIPER Mission Has Found Another Ride To The Moon**

Game on: After the cancellation of an innovative lunar rover last year, it now has new life, having hitched a different ride to the Moon. NASA has awarded a contract to aerospace company Blue Origin to take the Volatiles Investigating Polar Exploration Rover (VIPER) to the Moon. The mission will fly aboard a New Glenn Rocket and the company's Blue Moon Mark 1 (MK1) Lunar Lander will deliver the rover to the surface. The Commercial Lunar Payload Services (CLPS) task order is worth \$190 million. But it's currently optional for NASA, contingent on the success of the company's first . . . (continued at <https://skyandtelescope.org/astronomy-news/nasas-viper-mission-has-found-another-ride-to-the-moon/> )



### **Environmental Exclusions Proposed For U.S. Satellite Industry**

In a proposed rulemaking issued last month, the Federal Communications Commission (FCC) announced plans to exclude space-based operations from the National Environmental Policy Act (NEPA), calling them "extraterritorial activities" whose effects are "entirely outside of the jurisdiction of the United States." If enacted, the changes could ease regulations on satellite licensing, allowing new hardware to be launched with minimal FCC oversight. FCC and analogous international agencies are already handling some 1 million proposed satellites. . . . (continued at <https://skyandtelescope.org/astronomy-news/environmental-exclusions-proposed-for-u-s-satellite-industry/> )



### **Bipartisan Reps Urge House Leaders To Add Nasa Funding Protection To Stopgap Bill**

The months-long drama over NASA's fiscal year 2026 budget has entered a critical new phase, with a looming government shutdown forcing a high-stakes confrontation over the agency's future. The central conflict pits the White House's proposed 24 percent cut to NASA against bipartisan congressional efforts to maintain funding. Now, with competing stopgap funding measures on the table, a growing chorus of lawmakers and advocates is pushing for a special provision to protect NASA, fearing the White House's Office of Management and Budget (OMB) will unilaterally impose the deep cuts — including a 47 percent reduction to the agency's science programs . . . (continued at <https://www.astronomy.com/science/bipartisan-reps-urge-house-leaders-to-add-nasa-funding-protection-to-stopgap-bill/> )



### **Astronomers Discover A Perfectly Spherical Supernova Remnant**

In a universe governed by turbulence and chaos, perfection is rarely more than a mathematical ideal. Yet astronomers are puzzling over a newfound object that seems to defy that rule: a glowing, nearly flawless circular shell of gas and dust, likely the remnant of a long-dead star, that has remarkably preserved its shape in a universe where such order is uncommon. Miroslav Filipović, an astronomer at the Western Sydney University in Australia, spotted the remnant while . . . (continued at <https://www.astronomy.com/science/astronomers-discover-a-perfectly-spherical-supernova-remnant/> )



### **NASA Is Looking To Launch Artemis II By February**

NASA is preparing to send crewed missions to the Moon for the first time since the end of the Apollo Era over fifty years ago. With the success of Artemis I, which sent an uncrewed Orion spacecraft on a circumlunar flight and set a new distance record for a crew-capable spacecraft, NASA is gearing up for Artemis II. . . . (continued at <https://www.universetoday.com/articles/nasa-is-looking-to-launch-artemis-ii-by-february> )



### **Astronomers Find A Star That Exploded Twice**

In a stunning first-ever image, astronomers have seen a star that died by exploding twice. They pointed the European Southern Observatory's (ESO) Very Large Telescope (VLT) at supernova SNR 0509-67.5, located within the Large Magellanic Cloud, a satellite galaxy of our Milky Way in the far-southern constellation of Dorado the Swordfish. When they examined the image, it showed patterns that confirm its star suffered a pair of explosive blasts. Most supernovae are the explosive deaths of massive stars. . . (continued at <https://www.astronomy.com/science/astronomers-find-a-star-that-exploded-twice/> )



## Space News

News from around the Net

### Michael's Miscellany: Observe The Coathanger

On some clear, moonless night this fall, head out and locate the constellation Vulpecula the Fox. It's not the easiest star pattern to identify, but two much more apparent constellations will help you get into the right area. Vulpecula lies south of Cygnus and north of Aquila. And while you might be thinking, ah, he's leading us to the Dumbbell Nebula (M27), actually our journey to the Fox is to find a sweet-looking asterism that's usually called the Coathanger. Because it looks like a coathanger. I say "usually" because it's also designated as Collinder 399, Brocchi's Cluster, and Al Sufi's Cluster. . . . (continued at <https://www.astronomy.com/observing/michaels-miscellany-observe-the-coathanger/> )



### NASA Launches Mission To Study Sun-Fueled Solar Bubble

A NASA mission to study the heliosphere—the sun's magnetic bubble that shields our solar system—and develop a better understanding of space weather was launched from the agency's Kennedy Space Center along Florida's Atlantic coast on Wednesday morning. NASA's Interstellar Mapping and Acceleration Probe mission (IMAP) was launched aboard a SpaceX Falcon 9 rocket at 7:30 a.m. EDT. Equipped with advanced sensors and detectors, the spacecraft will sample, analyze, and map particles streaming toward Earth from the edges of our solar system and beyond. . . . (continued at <https://phys.org/news/2025-09-nasa-mission-sun-fueled-solar.html> )



### Rogue Planet SIMP-0136 Displays Strong Auroral Activity Similar To Northern Lights

Strong Northern Lights-like activity is the standout feature of today's weather report, which is coming at you from a strange, extrasolar world, instead of a standard TV studio. That is thanks to astronomers from Trinity College Dublin, who used the NASA/ESA/CSA James Webb Space Telescope to take a close look at the weather of a toasty nearby rogue planet, SIMP-0136. The exquisite sensitivity of the instruments on board the space-based telescope enabled the team to see minute changes in brightness of the planet as it rotated, which were used to track changes in temperature, cloud cover and chemistry. . . . (continued at <https://phys.org/news/2025-09-rogue-planet-simp-displays-strong.html> )



### Water Worlds Might Be Few And Far Between

One of the most common types of planets out there doesn't exist in our own solar system: "sub-Neptunes," or planets slightly smaller than Neptune with a gaseous atmosphere. With no basis for comparison, we don't really know what these planets are like. Some astronomers have even suggested that they might be water-rich, potentially hosting global oceans. However, a new study has shed doubt on this water-rich scenario. A paper published in The Astrophysical Journal Letters argues that sub-Neptunes are dry, with no more than a few percent more water (by mass) than Earth... (continued at <https://skyandtelescope.org/astronomy-news/water-worlds-might-be-few-and-far-between/> )



### New Comet SWAN (C/2025 R2) Pops Out From Behind The Sun

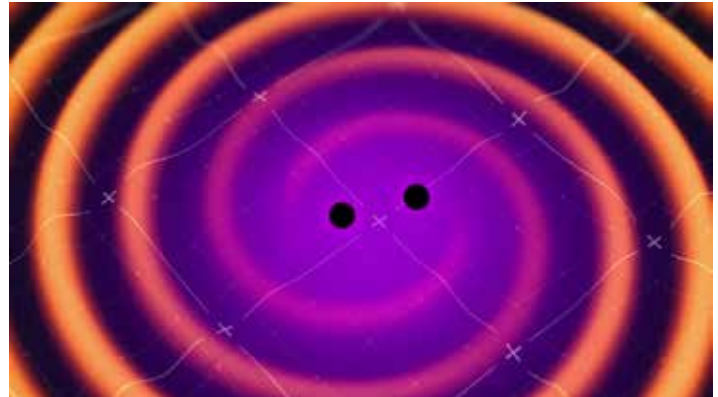
Congratulations to amateur astronomer Vladimir Bezugly of Ukraine! He discovered a bright new comet on September 11th around 1:45 UT in publicly posted images from the Solar Wind Anisotropies (SWAN) instrument on the orbiting Solar and Heliospheric Observatory (SOHO). This took a keen eye as the comet was barely visible just outside SWAN's solar occulting disk t turns out that SWAN25B — its temporarily name — has hovered in virtually the same position for more than a month because its velocity and direction have nearly matched that of the Sun, maintaining a constant tight elongation. On September 15th it received the permanent designation C/2025 R2 (SWAN). . . (continued at <https://skyandtelescope.org/astronomy-news/new-comet-swan25-pops-out-from-behind-the-sun/> )



## October's Night Sky Notes: Let's Go, LIGO!

By Kat Trochee, Astronomy Society of the Pacific, NASA Night Sky Network

September 2025 marks ten years since the first direct detection of gravitational waves as predicted by Albert Einstein's 1916 theory of General Relativity. These invisible ripples in space were first directly detected by the Laser Interferometer Gravitational-Wave Observatory (LIGO). Traveling at the speed of light (~186,000 miles per second), these waves stretch and squeeze the fabric of space itself, changing the distance between objects as they pass.



Two black holes orbit around each other and generate space-time ripples called gravitational waves in this image. Credit: NASA's Goddard Space Flight Center Conceptual Image Lab

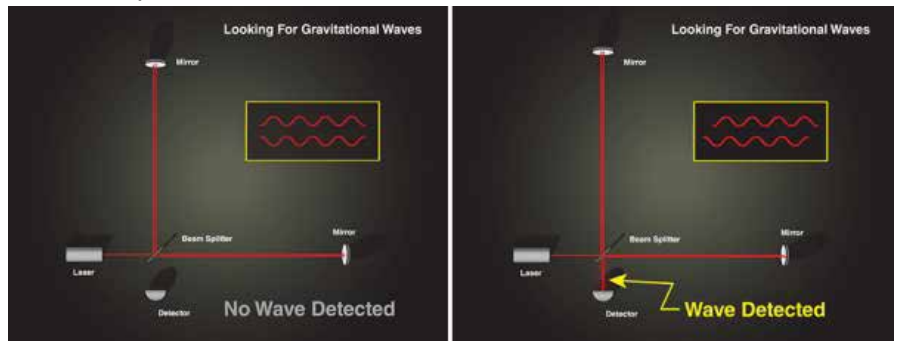
### Waves In Space

Gravitational waves are created when massive objects accelerate in space, especially in violent events. [LIGO detected the first gravitational waves](#) when two black holes, orbiting one another, finally merged, creating ripples in space-time. But these waves are [not exclusive to black holes](#). If a star were to go supernova, it could produce the same effect. Neutron stars can also create these waves for various reasons. While these waves are invisible to the human eye, [this animation](#) from NASA's Science Visualization Studio shows the merger of two black holes and the waves they create in the process.

### How It Works

A gravitational wave observatory, like LIGO, is built with two tunnels, each approximately 2.5 miles long, arranged in an "L" shape. At the end of each tunnel, a highly polished 40 kg mirror (about 16 inches across) is mounted; this will reflect the laser beam that is sent from the observatory. A laser beam is sent from the observatory room and split into two, with equal parts traveling down each tunnel, bouncing off the mirrors at the end. When the beams return, they are recombined. If the arm lengths are perfectly equal, the light waves cancel out in just the right way, producing darkness at the detector. But if a gravitational wave passes, it slightly stretches one arm while squeezing the other, so the returning beams no longer cancel perfectly, creating a flicker of light that reveals the wave's presence.

The actual detection happens at the point of recombination, when even a minuscule stretching of one arm and squeezing of the other changes how long it takes the laser beams to return. This difference produces a measurable shift in the interference pattern. To be certain that the signal is real and not local noise, both LIGO observatories — one in Washington State (LIGO Hanford) and the other in Louisiana (LIGO Livingston) — must record the same pattern within milliseconds. When they do, it's confirmation of a gravitational wave rippling through Earth. We don't feel these waves as they pass through our planet, but we now have a method of detecting them!



Still images of how LIGO (Laser Interferometer Gravitational-Wave Observatory) detects gravitational waves using a laser, mirrors, and a detector. You can find the animated version [here](#). Image Credit: NASA

### Get Involved

With the help of two additional gravitational-wave observatories, [VIRGO](#) and [KAGRA](#), there have been [300 black hole mergers detected in the past decade](#); some of which are confirmed, while others await further study.

While the average person may not have a laser interferometer lying around in the backyard, you can help with two projects geared toward detecting gravitational waves and the black holes that contribute to them:

- **Black Hole Hunters:** Using data from the [TESS satellite](#), you would study graphs of how the brightness of stars changes over time, looking for an effect called gravitational microlensing. This lensing effect can indicate that a massive object has passed in front of a star, such as a black hole.
- **Gravity Spy:** You can help LIGO scientists with their gravitational wave research by looking for glitches that may mimic gravitational waves. By sorting out the mimics, we can train algorithms on how to detect the real thing.

You can also use gelatin, magnetic marbles, and a small mirror for a more hands-on demonstration on how gravitational waves move through space-time with JPL's [Dropping In With Gravitational Waves](#) activity!

#### ADDITIONAL LINKS:

LIGO Home Page: <https://www.ligo.caltech.edu/news/ligo20160211>

Gravitational Wave Animation: [https://svs.gsfc.nasa.gov/20367/#media\\_group\\_314770](https://svs.gsfc.nasa.gov/20367/#media_group_314770)

VIRGO Home Page: <https://www.virgo-gw.eu/>

KAGRA Home Page: <https://gwcenter.icrr.u-tokyo.ac.jp/en/>

Black Hole Hunters: <https://www.zooniverse.org/projects/cobalt-lensing/black-hole-hunters>

Gravity Spy: <https://www.zooniverse.org/projects/zooniverse/gravity-spy>

Dropping In With Gravitational Waves: <https://www.jpl.nasa.gov/edu/resources/lesson-plan/dropping-in-with-gravitational-waves/>

## An Important Message from Night Sky Network

Since 2018, the NASA Night Sky Network has provided articles featuring the latest stargazing and NASA news to share with your organization's readership. As of October 1, 2025, Night Sky Notes will be suspended until further notice, as cuts and restructuring are part of NASA's Fiscal Year 2026 budget. This was our **final** article.

### Additional Skywatching Resources

Plan your skywatching with help from our planner page, featuring daily stargazing tips courtesy EarthSky monthly sky maps, and videos from NASA/JPL. You can even find out how to spot the International Space Station! Both Astronomy and Sky and Telescope magazines offer regular stargazing guides to readers, both in print and online. Want to join a group of folks for a star party? Find clubs and astronomy events near you, and may you have clear skies!

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!

For sale: 4 inch Celestron Equatorial telescope. Includes mount, solar filter, finder scope, eyepieces, two inch diagonal, carrying bag. Few scratches on finish. Price: \$250. Email either Duane ([gurba1826@gmail.com](mailto:gurba1826@gmail.com)) or Rose ([rmorion1@bak.rr.com](mailto:rmorion1@bak.rr.com))

## Webb Observes Immense Stellar Jet On Outskirts Of Our Milky Way

[weic2519 — Science Release](#) 10 September 2025

Way out toward the edge of our Milky Way galaxy, a young star that is still forming is sending out a birth announcement to the Universe in the form of a celebratory looking firework. These seething twin jets of hot gasses are blazing across 8 light-years – twice the distance between our Sun and the nearest star system. Superheated gases falling onto the massive star are blasted back into space along the star’s rotational axis and powerful magnetic fields confine the jets to narrow beams. The NASA/ESA/CSA James Webb Space Telescope witnessed the spectacle in infrared light. The jets are plowing into interstellar dust and gas, creating fascinating details captured only by Webb.



A blowtorch of seething gasses erupting from a volcanically growing monster star has been captured by Webb. Stretching across 8 light-years, the length of the stellar eruption is approximately twice the distance between our Sun and the nearby Alpha Centauri system. The size and strength of this particular stellar jet, known as Sharpless 2-284 (Sh2-284 for short), qualifies it as rare, say researchers.

The outflow is streaking across space at hundreds of thousands of kilometres per hour. The central protostar, weighing as much as ten of our Suns, is located 15,000 light-years away in the outer reaches of our galaxy.

The Webb discovery was serendipitous. “We didn’t really know there was a massive star with this kind of super-jet out there before the observation. Such a spectacular outflow of molecular hydrogen from a massive star is rare in other regions of our galaxy,” said lead author Yu Cheng of the National Astronomical Observatory of Japan.

This unique class of stellar fireworks, called Herbig-Haro (HH) objects, are highly collimated jets of plasma shooting out from newly forming stars. Such jetted outflows are a star’s spectacular “birth announcement” to the Universe. Some of the infalling gas building up around the central star is blasted along the star’s spin axis, likely under the influence of magnetic fields.

Today, well over 300 HH objects have been observed, but mainly from low-mass stars. These spindle-like jets offer clues into the nature of newly forming stars. The energetics, narrowness, and evolutionary time scales of HH objects all serve to constrain models of the environment and physical properties of the young stellar object powering the outflow.

“I was really surprised at the order, symmetry, and size of the jet when we first looked at it,” said co-author Jonathan Tan of the University of Virginia in Charlottesville and Chalmers University of Technology in Gothenburg, Sweden.

Its detection offers evidence that HH jets must scale up with the mass of the star powering them. The more massive the stellar engine propelling the plasma, the larger the gusher’s size.

The jet’s detailed filamentary structure, captured by Webb’s crisp resolution in infrared light, is evidence the jet is plowing into interstellar dust and gas. This creates separate knots, bow shocks, and linear chains.

The tips of the jet, lying in opposite directions, encapsulate the history of the star’s formation. “Originally the material was close into the star, but over 100,000 years the tips were propagating out, and then the stuff behind is a younger outflow,” said Tan.

### Outlier

At nearly twice the distance from the galactic center as our Sun, the host proto-cluster that’s home to the voracious jet is on the periphery of our Milky Way galaxy.

Within the cluster, a few hundred stars are still forming. Being in the galactic hinterlands means the stars are deficient in heavier elements beyond hydrogen and helium. This is measured as metallicity, which gradually increases over cosmic time as each passing stellar generation expels end products of nuclear fusion through winds and supernovae. The low metallicity of Sh2-284

is a reflection of its relatively pristine nature, making it a local analog for the environments in the early universe that were also deficient in heavier elements.

“Webb’s exquisite data have also shown us that relatively more stars seem to form at lower masses in Sh2-284 than in closer, more metal-rich clusters,” said co-author Morten Andersen, of the European Southern Observatory, and lead author of a second paper on the Webb data. “This cluster is an excellent region to help us understand star formation throughout the Universe.”

“Massive stars, like the one found inside this cluster, have very important influences on the evolution of galaxies. Our discovery is shedding light on the formation mechanism of massive stars in low metallicity environments, so we can use this massive star as a laboratory to study what was going on in earlier cosmic history,” added Cheng.

## Unrolling stellar tapestry

Stellar jets, which are powered by the gravitational energy released as a star grows in mass, encode the formation history of the protostar.

“Webb’s new images are telling us that the formation of massive stars in such environments could proceed via a relatively stable disc around the star that is expected in theoretical models of star formation known as core accretion,” said Tan. “Once we found a massive star launching these jets, we realised we could use the Webb observations to test theories of massive star formation. We developed new theoretical core accretion models that were fit to the data, to basically tell us what kind of star is in the center. These models imply that the star is about 10 times the mass of the Sun and is still growing and has been powering this outflow.”

For more than 30 years, astronomers have disagreed about how massive stars form. Some think a massive star requires a very chaotic process, called competitive accretion.

In the competitive accretion model, material falls in from many different directions so that the orientation of the disc changes over time. The outflow is launched perpendicularly, above and below the disc, and so would also appear to twist and turn in different directions.

“However, what we’ve seen here, because we’ve got the whole history – a tapestry of the story – is that the opposite sides of the jets are nearly 180 degrees apart from each other. That tells us that this central disc is held steady and validates a prediction of the core accretion theory,” said Tan.

Where there’s one massive star, there could be others in this outer frontier of the Milky Way. Other massive stars may not yet have reached the point of firing off Roman-candle-style outflows. Data from the Atacama Large Millimeter Array in Chile, also presented in this study, has found another dense stellar core that could be in an earlier stage of construction.

The paper has been accepted for publication in [The Astrophysical Journal](#).

## More information

Webb is the largest, most powerful telescope ever launched into space. Under an international collaboration agreement, ESA provided the telescope’s launch service, using the Ariane 5 launch vehicle. Working with partners, ESA was responsible for the development and qualification of Ariane 5 adaptations for the Webb mission and for the procurement of the launch service by Arianespace. ESA also provided the workhorse spectrograph NIRSpec and 50% of the mid-infrared instrument MIRI, which was designed and built by a consortium of nationally funded European Institutes (The MIRI European Consortium) in partnership with JPL and the University of Arizona.

Webb is an international partnership between NASA, ESA and the Canadian Space Agency (CSA).

Image Credit: NASA, ESA, CSA, STScI, Y. Cheng (NAOJ), J. DePasquale (STScI)

## Links

- [Science paper](#)
- [Release on STScI website](#)
- [Release on NASA website](#)

## Contacts

Bethany Downer

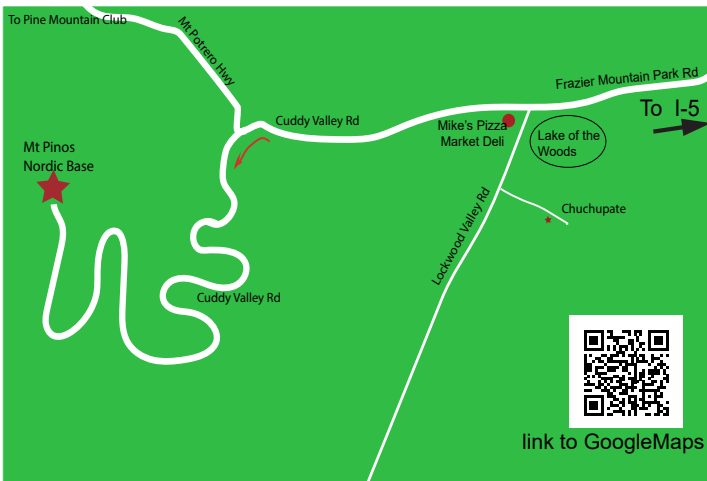
ESA/Webb Chief Science Communications Officer Email: [Bethany.Downer@esawebb.org](mailto:Bethany.Downer@esawebb.org)

ESA Newsroom and Media Relations Office Email: [media@esa.int](mailto:media@esa.int)

## Dark Sky Observing Sites

**The Chuchupate** parking lot is a half a mile beyond the Mt Pinos ranger station (on some maps The Chuchupate Ranger Sta.), the parking lot is also called Frazier Mountain trailhead.

To get there, take the Frazier Mountain Park RD east about 7 miles from I-5, to Lake Of The Woods, Turn left on Lockwood Valley Rd. ( If you see Mike’s Pizza on your left you missed the turn) In less than a mile there is a road to the left, go past the ranger station, the parking lot is on the right. The Club gathers in the upper end of the lot. The Elevation is 5430 feet. There is a vault toilet. (link to GoogleMaps) [RX3R+3F, Frazier Park, CA 93225](#)



**Mt Pinos** is a parking lot at 8350 feet for the “Mt Pinos Nordic Base.” There is a vault toilet 300 yds to the east in the Chula Vista campground.

To get there: From I-5, get off at Frazier Mountain Park Rd and drive west about 7 miles to Mike’s Pizza/Market Deli at Lockwood Valley Rd. Keep on the main roadway (don’t turn left to go to Chuchupate). Continue past Mike’s Pizza on Cuddy Valley Rd (the road’s new name) about 5 miles. Continue straight (do not turn right on to Mil Potrero Hwy) for another 8 1/2 miles to the parking area.

Note: Almost the entire drive from I-5 is uphill.

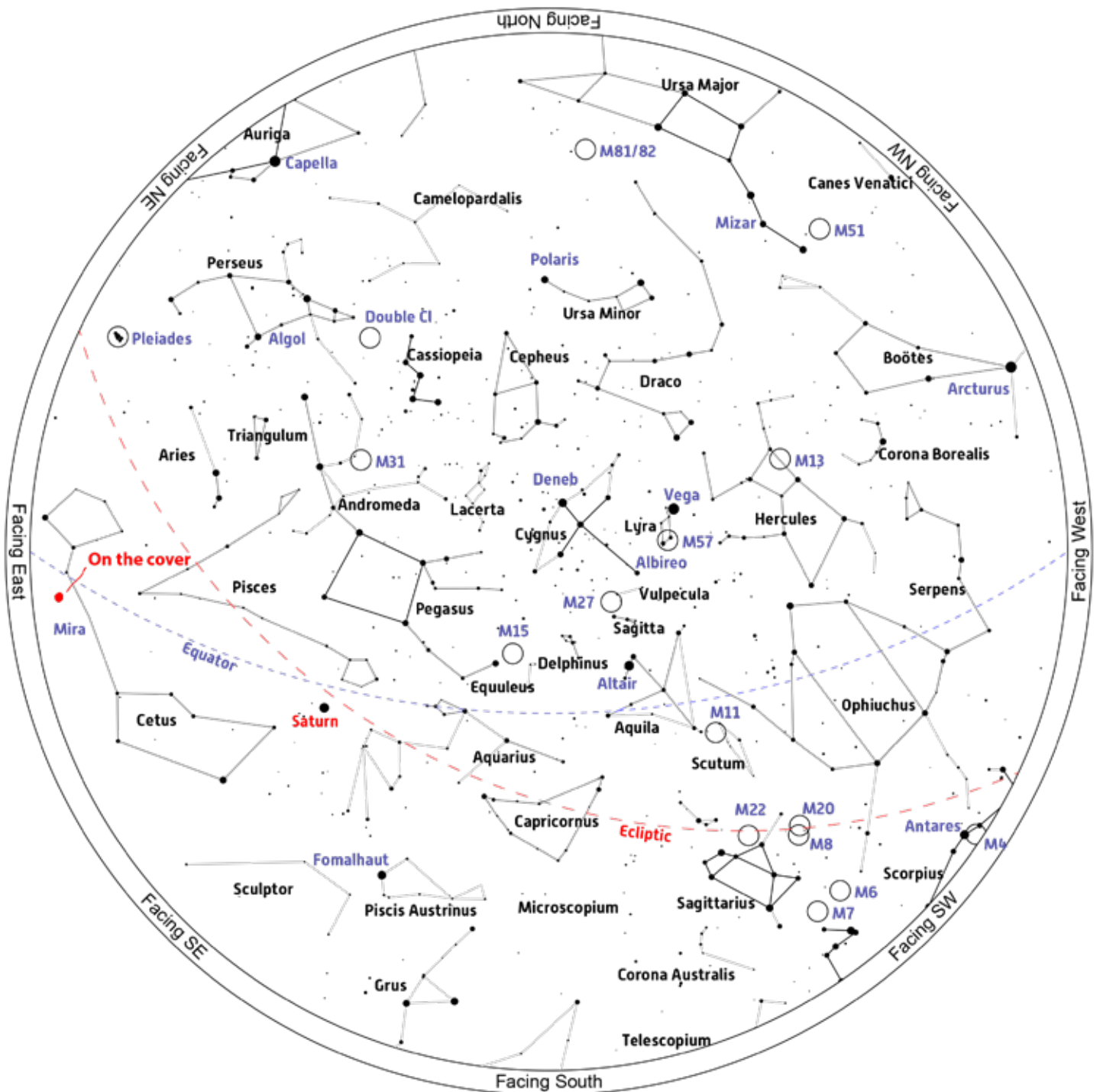
[RV7F+FF Frazier Park, California](#) (link to GoogleMaps)

**The Red Cliffs Natural Area** is part of **Red Rock Canyon State Park** is a day use area and is not for use by the public after dark. The Club gets a special permit for a star party and pays a fee.

To get there: Take the CA-14 north 25 miles past Mojave. You will see giant red cliffs on the right side and a small sign that says “Red Cliffs Natural Area” and a dirt road. (If you see the large sign for the Ricardo campground, you drove a mile too far). Follow the road to the large parking lot (that hasn’t been graded in a long time). Elevation is 2410 feet. There is a vault toilet. . . . (link to GoogleMaps). [926F+X5 Ricardo, California](#)



## Sky Chart



Location: Palmdale, CA 93551  
Latitude: 34° 36' N, longitude: 118° 11' W  
Time: 2025 October 18, 20:00 (UTC -07:00)

Powered by: Heavens-Above.com

## Solar System Summary

The **Sun** starts the month in central Virgo ending the month on the eastern edge of Libra.

### The Planets

**Mercury** emerges in the evening sky early in the month gradually separating from the Sun until the 29th when it achieves GEE of 24° and is brighter than mag 0.0 all month.

**Venus** in the morning twilight, while still in Virgo, begins its fall back toward the Sun as a nearly full disk.

**Mars** is increasingly difficult to locate in the evening twilight. On the 20-21 Mars is in conjunction with Mercury just after sundown.

**Jupiter** in Gemini, rising after midnight continues it's normal motion heading east central Gemini at mag 2.2

**Saturn** rising before sunset moves in retrograde in Aquarius at mag 0.6 the entire month. On the 5th the 98% waxing Moon passes 2½° to the north.

**Uranus** moves in retrograde motion at mag 5.6 in eastern Taurus, about 4° south of the Pleiades.

**Neptune** is moving in retrograde in southern Pisces at mag 7.8. The 98% waxing Moon passes less than 2° north on the 5th. Saturn is about 3° to the SW most of the month.

### Dwarf Planets

**134340 Pluto** starts the month in retrograde, still in western Capricorn, at mag 14.5, till the 17th when it restarts normal motion.

**1 Ceres** spends the month crawling across Cetus in retrograde at mag 7.5.

**2 Pallas** continues it's retrograde motion making a big loop through eastern Aquila at magnitude 10.1.

**3 Juno** continues drifting from Libra, through a corner of Scorpius and into southern Ophiuchus at mag 11.4.

**4 Vesta** moves in normal motion in southern Ophiuchus at mag 8.

## Moon Phases



First Qtr Oct 29      Full Oct 6      Third Qtr Oct 13      New Oct 21

## Sun and Moon Rise and Set\*

Date	Moonrise	Moonset	Sunrise	Sunset
10/1/2025	15:38	00:38	06:47	18:36
10/5/2025	17:43	05:06	06:50	18:30
10/10/2025	20:56	11:16	06:54	18:23
10/15/2025	01:19	15:34	06:58	18:17
10/20/2025	06:19	17:39	07:02	18:11
10/25/2025	11:11	20:35	07:07	18:05
10/30/2025	14:42	00:32	07:11	18:00

## Planet Data\*

October 1

	Rise	Transit	Set	Mag	Phase%
Mercury	07:54	13:33	19:10	-0.46	92.6
Venus	04:54	11:17	17:39	-3.94	91.4
Mars	09:02	14:26	19:49	1.56	97.7
Jupiter	00:39	07:48	14:53	-2.20	99.1
Saturn	18:10	00:03	06:00	0.66	99.9

October 15

	Rise	Transit	Set	Mag	Phase%
Mercury	08:42	13:55	19:08	-0.18	82.3
Venus	05:21	11:26	17:29	-3.94	93.8
Mars	08:54	14:08	19:23	1.52	98.3
Jupiter	23:50	16:59	14:04	-2.28	99.1
Saturn	17:13	23:04	05:00	0.75	99.9

October 30

	Rise	Transit	Set	Mag	Phase%
Mercury	09:15	14:10	19:03	-0.11	60.0
Venus	05:51	11:35	17:19	-3.93	96.0
Mars	08:47	13:52	18:57	1.47	98.8
Jupiter	22:56	06:04	13:08	-2.38	99.1
Saturn	16:11	22:02	03:57	0.86	99.8

\*All time mentioned are local and approximate.

\*Sun, Moon and Planetary date based on Quartz Hill, CA

## Suggested Observing List

The list below contains objects that will be visible on the night of the AVAC Deep Sky Star Party or the Saturday nearest the New Moon, in this case October 18, 2025. The list is sorted by the transit time of the object.

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M63	Sunflower Galaxy	Galaxy	CVn	13h 15m 49s	+42° 01.7'	9.3	03:45	12:25	21:05
NGC5139	Omega Centauri	Globular	Cen	13h 26m 48s	-47° 29.0'	3.6	09:47	12:36	15:25
NGC5169		Galaxy	CVn	13h 28m 10s	+46° 40.3'	14.0	03:21	12:37	21:53
NGC5204		Galaxy	UMa	13h 29m 36s	+58° 25.1'	11.3	Circ	12:39	Circ
M51	Whirlpool Galaxy	Galaxy	CVn	13h 29m 52s	+47° 11.7'	8.9	03:18	12:39	22:00
Arp85	M51B	Galaxy	CVn	13h 29m 58s	+47° 16.0'	9.6	03:18	12:39	22:01
NGC5182		Galaxy	Hya	13h 30m 41s	-28° 09.0'	13.0	08:04	12:40	17:16
NGC5214		Galaxy	CVn	13h 32m 49s	+41° 52.3'	14.0	04:03	12:42	21:21
M83	Southern Pinwheel Galaxy	Galaxy	Hya	13h 37m 00s	-29° 51.8'	8.0	08:17	12:46	17:15
HR5144	1 Boo	Triple	Boo	13h 40m 40s	+19° 57.3'	5.8	05:48	12:50	19:51
NGC5283		Galaxy	Dra	13h 41m 06s	+67° 40.3'	14.0	Circ	12:50	Circ
M3	NGC5272	Globular	CVn	13h 42m 11s	+28° 22.5'	7.0	05:20	12:51	20:23
NGC5286	C84	Globular	Cen	13h 46m 24s	-51° 22.0'	7.6	10:49	12:55	15:02
NGC5292		Galaxy	Cen	13h 47m 40s	-30° 56.4'	14.0	08:32	12:57	17:22
NGC5356		Galaxy	Vir	13h 54m 59s	+05° 20.0'	14.0	06:46	13:04	19:22
NGC5363		Galaxy	Vir	13h 56m 07s	+05° 15.2'	10.2	06:48	13:05	19:23
NGC5447	III-787	Neb	UMa	14h 02m 29s	+54° 16.3'		01:49	13:12	00:35
M101	Pinwheel Galaxy	Galaxy	UMa	14h 03m 13s	+54° 20.9'	8.2	01:45	13:12	00:39
NGC5461	III-788	Neb	UMa	14h 03m 42s	+54° 19.0'		01:47	13:13	00:38
NGC5485		Galaxy	UMa	14h 07m 11s	+55° 00.0'	11.5	Circ	13:16	Circ
NGC5460		Open	Cen	14h 07m 27s	-48° 20.6'	5.6	10:36	13:17	15:58
NGC5500		Galaxy	Boo	14h 10m 15s	+48° 32.7'	14.0	03:45	13:19	22:54
IC991		Galaxy	Vir	14h 17m 48s	-13° 52.3'	13.0	08:04	13:27	18:50
HR5362	SAO224838	Dbl	Lup	14h 20m 10s	-43° 03.5'	5.6	10:06	13:29	16:52
IC4406	Retina Nebula	P Neb	Lup	14h 22m 26s	-44° 09.0'	11.0	10:16	13:32	16:47
HR5409	Phi Vir	Triple	Vir	14h 28m 12s	-02° 13.6'	4.8	07:41	13:37	19:34
NGC5669		Galaxy	Boo	14h 32m 44s	+09° 53.4'	12.0	07:11	13:42	20:12
NGC5689		Galaxy	Boo	14h 35m 30s	+48° 44.5'	11.9	04:08	13:45	23:21
M102	Spindle Galaxy (duplicate of M101?)	Galaxy	Dra	15h 06m 30s	+55° 45.7'	10.8	Circ	14:16	Circ
NGC5875		Galaxy	Boo	15h 09m 13s	+52° 31.6'	13.0	03:47	14:18	00:50
NGC5907	Splinter Galaxy	Galaxy	Dra	15h 15m 54s	+56° 19.7'	11.4	Circ	14:25	Circ
NGC5882		P Neb	Lup	15h 16m 50s	-45° 38.9'	11.0	11:22	14:26	17:30
NGC5897		Globular	Lib	15h 17m 24s	-21° 00.6'	8.6	09:25	14:26	19:28
M5	NGC5904	Globular	Ser	15h 18m 33s	+02° 04.9'	7.0	08:19	14:28	20:36
Barnard228	B228	DkNeb	Lup	15h 44m 00s	-34° 30.0'		10:43	14:53	19:03

# Desert Sky Observer

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October 2025

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
IC4593	White Eyed Pea	P Neb	Her	16h 11m 44s	+12° 04.3'	11.0	08:44	15:21	21:58
IC4592	Jabbah	Neb	Sco	16h 11m 59s	-19° 27.4'		10:15	15:21	20:27
M80	NGC6093	Globular	Sco	16h 17m 03s	-22° 58.5'	8.5	10:32	15:26	20:21
IC4601		Neb	Sco	16h 20m 18s	-20° 04.9'		10:25	15:29	20:34
Abell38		P Neb	Sco	16h 23m 17s	-31° 44.9'	11.7	11:11	15:32	19:54
M4	Cat's Eye	Globular	Sco	16h 23m 35s	-26° 31.5'	7.5	10:51	15:33	20:15
IC4603	Rho Ophiuchi Complex [1]	Neb	Oph	16h 25m 24s	-24° 28.0'		10:45	15:34	20:24
IC4604	Rho Ophiuchi Complex [2]	Neb	Oph	16h 25m 33s	-23° 26.5'		10:42	15:35	20:28
NGC6124	C75	Open	Sco	16h 25m 36s	-40° 40.0'	5.8	11:57	15:35	19:13
Abell39		P Neb	Her	16h 27m 33s	+27° 54.5'	12.9	08:07	15:37	23:06
IC4605		Neb	Sco	16h 30m 12s	-25° 06.8'		10:52	15:39	20:26
NGC6153		P Neb	Sco	16h 31m 31s	-40° 15.2'	12.0	12:00	15:41	19:21
NGC6181		Galaxy	Her	16h 32m 21s	+19° 49.5'	11.9	08:40	15:41	22:43
NGC6171		Globular	Oph	16h 32m 32s	-13° 03.1'	8.1	10:16	15:42	21:07
M13	Great Hercules Cluster	Globular	Her	16h 41m 41s	+36° 27.5'	7.0	07:43	15:51	23:58
NGC6210	Turtle Planetary Nebula	P Neb	Her	16h 44m 30s	+23° 48.0'	9.0	08:39	15:54	23:08
M12	Gumball Globular	Globular	Oph	16h 47m 14s	-01° 56.8'	8.0	09:59	15:56	21:54
M62	Flickering Globular	Globular	Oph	17h 01m 13s	-30° 06.7'	8.0	11:42	16:10	20:39
M19	NGC6273	Globular	Oph	17h 02m 38s	-26° 16.0'	8.5	11:29	16:12	20:55
Barnard51	B51	DkNeb	Oph	17h 04m 44s	-22° 15.0'		11:17	16:14	21:11
Barnard251	B251	DkNeb	Oph	17h 13m 48s	-20° 09.0'		11:19	16:23	21:27
Barnard63	B63	DkNeb	Oph	17h 16m 00s	-21° 28.0'		11:25	16:25	21:25
M92	NGC6341	Globular	Her	17h 17m 07s	+43° 08.1'	7.5	07:39	16:26	01:14
M9	NGC6333	Globular	Oph	17h 19m 12s	-18° 31.0'	9.0	11:19	16:28	21:37
NGC6326		P Neb	Ara	17h 20m 46s	-51° 45.2'	12.0	14:28	16:30	18:32
Barnard256	B256	DkNeb	Oph	17h 22m 12s	-28° 49.0'		11:58	16:31	21:05
Barnard67a	B67a	DkNeb	Oph	17h 22m 30s	-21° 53.0'		11:33	16:32	21:30
Barnard71	B71	DkNeb	Oph	17h 23m 02s	-24° 00.0'		11:41	16:32	21:23
NGC6357	Lobster Nebula	Neb	Sco	17h 24m 43s	-34° 12.1'		12:23	16:34	20:45
Abell41		P Neb	Ser	17h 29m 04s	-15° 13.3'	13.9	11:19	16:38	21:57
Abell42		P Neb	Oph	17h 31m 31s	-08° 19.1'	14.6	11:01	16:41	22:20
Barnard78	B78	DkNeb	Oph	17h 32m 00s	-25° 35.0'		11:56	16:41	21:27
M14	NGC6402	Globular	Oph	17h 37m 36s	-03° 14.7'	9.5	10:53	16:47	22:40
Barnard276	B276	DkNeb	Oph	17h 39m 39s	-19° 49.0'		11:44	16:49	21:54
M6	Butterfly Cluster	Open	Sco	17h 40m 20s	-32° 15.2'	4.5	12:30	16:49	21:09
NGC6426		Globular	Oph	17h 44m 55s	+03° 10.1'	11.2	10:42	16:54	23:06
Barnard83a	B83a	DkNeb	Sgr	17h 45m 18s	-20° 00.0'		11:50	16:54	21:59
IC4665		Open	Oph	17h 46m 30s	+05° 39.0'	4.2	10:37	16:56	23:14
NGC6445	Crescent Nebula	P Neb	Sgr	17h 49m 15s	-20° 00.6'	13.0	11:54	16:58	22:03

# Desert Sky Observer

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October 2025

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC6503		Galaxy	Dra	17h 49m 27s	+70° 08.6'	10.2	Circ	16:59	Circ
NGC6441		Globular	Sco	17h 50m 13s	-37° 03.0'	7.4	13:02	16:59	20:57
Barnard283	B283	DkNeb	Sco	17h 51m 00s	-33° 52.0'		12:48	17:00	21:13
Barnard285	B285	DkNeb	Ser	17h 51m 32s	-12° 52.0'		11:34	17:01	22:27
M7	Scorpion's Tail	Open	Sco	17h 53m 51s	-34° 47.6'	3.5	12:55	17:03	21:11
IC4670		Neb	Sgr	17h 55m 07s	-21° 44.6'		12:05	17:04	22:03
NGC6501		Galaxy	Her	17h 56m 04s	+18° 22.3'	12.3	10:09	17:05	00:02
M23	NGC6494	Open	Sgr	17h 57m 04s	-18° 59.1'	6.0	11:58	17:06	22:14
NGC6543	Cat Eye Nebula	P Neb	Dra	17h 58m 36s	+66° 38.0'	8.1	Circ	17:08	Circ
NGC6496		Globular	Sco	17h 59m 04s	-44° 16.0'	9.2	13:54	17:08	20:23
Barnard291	B291	DkNeb	Sgr	17h 59m 43s	-33° 53.0'		12:56	17:09	21:21
Barnard292	B292	DkNeb	Sgr	18h 00m 34s	-33° 20.0'		12:55	17:10	21:25
M20	Trifid Nebula	Open+D Neb	Sgr	18h 02m 42s	-22° 58.2'	5.0	12:17	17:12	22:06
M8	Lagoon Nebula	Open+D Neb	Sgr	18h 03m 41s	-24° 22.7'	5.0	12:23	17:13	22:03
Barnard295	B295	DkNeb	Sgr	18h 04m 05s	-31° 09.0'		12:49	17:13	21:37
M21	NGC6531	Open	Sgr	18h 04m 13s	-22° 29.3'	7.0	12:17	17:13	22:10
NGC6530		Open	Sgr	18h 04m 31s	-24° 21.5'	4.6	12:24	17:14	22:03
NGC6528		Globular	Sgr	18h 04m 50s	-30° 03.3'	9.5	12:45	17:14	21:43
IC4684		Neb	Sgr	18h 09m 08s	-23° 26.1'		12:25	17:18	22:11
IC4685		Neb	Sgr	18h 09m 18s	-23° 59.2'		12:27	17:18	22:09
Barnard303	B303	DkNeb	Sgr	18h 09m 28s	-23° 59.0'		12:27	17:19	22:10
IC1274		Neb	Sgr	18h 09m 51s	-23° 38.8'		12:27	17:19	22:11
IC1275		Neb	Sgr	18h 10m 07s	-23° 45.7'		12:27	17:19	22:11
NGC6572		P Neb	Oph	18h 12m 06s	+06° 51.2'	9.0	10:59	17:21	23:43
NGC6567		P Neb	Sgr	18h 13m 45s	-19° 04.5'	12.0	12:15	17:23	22:30
IC4701		Neb	Sgr	18h 16m 36s	-16° 38.0'		12:11	17:26	22:41
Barnard93	B93	DkNeb	Sgr	18h 16m 53s	-18° 03.0'		12:15	17:26	22:37
IC1284		Neb	Sgr	18h 17m 39s	-19° 40.3'		12:21	17:27	22:32
M24	Small Sagittarius Star Cloud	Open	Sgr	18h 18m 26s	-18° 24.3'	4.5	12:18	17:28	22:37
M16	Eagle Nebula	Open+D Neb	Ser	18h 18m 48s	-13° 48.3'	6.5	12:04	17:28	22:51
Barnard308	B308	DkNeb	Sgr	18h 19m 08s	-22° 14.0'		12:31	17:28	22:25
M18	Black Swan	Open	Sgr	18h 19m 58s	-17° 06.1'	8.0	12:16	17:29	22:43
M17	Omega Nebula	Open+D Neb	Sgr	18h 20m 47s	-16° 10.3'	7.0	12:13	17:30	22:46
HR6923	39 Dra	Mult	Dra	18h 23m 54s	+58° 48.0'	5.0	Circ	17:33	Circ
M28	NGC6626	Globular	Sgr	18h 24m 33s	-24° 52.1'	8.5	12:46	17:34	22:22
Barnard95	B95	DkNeb	Sct	18h 25m 35s	-11° 44.0'		12:05	17:35	23:04
Barnard97	B97	DkNeb	Sct	18h 29m 05s	-09° 55.0'		12:03	17:38	23:13
Abell44		P Neb	Sgr	18h 30m 11s	-16° 45.4'	12.6	12:25	17:39	22:54
NGC6637		Globular	Sgr	18h 31m 23s	-32° 20.8'	7.7	13:21	17:40	22:00

# Desert Sky Observer

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October 2025

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
IC1287		Neb	Sct	18h 31m 26s	-10° 47.7'		12:08	17:41	23:13
M25	M25	Open	Sgr	18h 31m 42s	-19° 07.0'	6.5	12:34	17:41	22:48
IC4725		Open	Sgr	18h 31m 48s	-19° 06.7'	4.6	12:34	17:41	22:48
NGC6642		Globular	Sgr	18h 31m 54s	-23° 28.5'	8.8	12:48	17:41	22:34
NGC6644		P Neb	Sgr	18h 32m 35s	-25° 07.7'	12.0	12:55	17:42	22:29
NGC6647		Open	Sgr	18h 32m 49s	-17° 13.6'	8.0	12:29	17:42	22:55
IC4732		P Neb	Sgr	18h 33m 55s	-22° 38.6'	13.0	12:47	17:43	22:39
NGC6656	Crackerjack Cluster	Globular	Sgr	18h 36m 24s	-23° 54.2'	5.1	12:54	17:45	22:37
IC4756		Open	Ser	18h 38m 54s	+05° 27.0'	5.0	11:30	17:48	00:06
NGC6681		Globular	Sgr	18h 43m 12s	-32° 17.4'	8.1	13:33	17:52	22:12
NGC6694		Open	Sct	18h 45m 18s	-09° 23.0'	8.0	12:18	17:54	23:31
IC4776		P Neb	Sgr	18h 45m 51s	-33° 20.5'	12.0	13:40	17:55	22:10
Barnard318	B318	DkNeb	Sct	18h 49m 42s	-06° 23.0'		12:14	17:59	23:44
M11	Wild Duck Cluster	Open	Sct	18h 51m 05s	-06° 16.1'	7.0	12:15	18:00	23:45
M57	Ring Nebula	P Neb	Lyr	18h 53m 35s	+33° 01.7'	9.5	10:12	18:03	01:54
Barnard117	B117	DkNeb	Sct	18h 53m 43s	-07° 24.0'		12:21	18:03	23:45
NGC6715		Globular	Sgr	18h 55m 03s	-30° 28.7'	7.7	13:37	18:04	22:31
NGC6717	III-143	Globular	Sgr	18h 55m 06s	-22° 42.0'	9.2	13:09	18:04	23:00
NGC6723		Globular	Sgr	18h 59m 33s	-36° 37.9'	7.3	14:09	18:09	22:08
Barnard128	B128	DkNeb	Aql	19h 01m 40s	-04° 34.0'		12:21	18:11	00:01
NGC6729	C68	BrNeb	CrA	19h 01m 54s	-36° 57.0'		14:13	18:11	22:09
Barnard326	B326	DkNeb	Aql	19h 03m 00s	-00° 23.0'		12:10	18:12	00:14
NGC6749		Globular	Aql	19h 05m 15s	+01° 54.0'	11.1	12:06	18:14	00:22
Barnard329	B329	DkNeb	Aql	19h 06m 59s	+03° 11.0'		12:04	18:16	00:28
NGC6760		Globular	Aql	19h 11m 12s	+01° 01.8'	9.1	12:15	18:20	00:26
M56	NGC6779	Globular	Lyr	19h 16m 36s	+30° 11.0'	9.5	10:47	18:26	02:05
NGC6778		P Neb	Aql	19h 18m 25s	-01° 35.7'	13.0	12:29	18:28	00:26
NGC6807		P Neb	Aql	19h 34m 34s	+05° 41.0'	14.0	12:25	18:44	01:02
M55	NGC6809	Globular	Sgr	19h 40m 00s	-30° 57.7'	7.0	14:24	18:49	23:14

And - Andromeda  
Ant - Antlia  
Aps - Apus  
Aql - Aquila  
Aqr - Aquarius  
Ara - Ara  
Ari - Aries  
Aur - Auriga  
Boo - Bootes  
Cae - Caelum  
Cam - Camelopardis  
Cap - Capricornus  
Car - Carina  
Cas - Cassiopeia  
Cen - Centaurus

Cep - Cepheus  
Cet - Cetus  
Cha - Chamaeleon  
Cir - Circinus  
CMa - Canis Major  
CMi - Canis Minor  
Cnc - Cancer  
Col - Columba  
Com - Coma Berenices  
CrA - Corona Australis  
CrB - Corona Borealis  
Crt - Crater  
Cru - Crux  
Crv - Corvus  
CVn - Canes Venatici

Cyg - Cygnus  
Del - Delphinus  
Dor - Dorado  
Dra - Draco  
Equ - Equuleus  
Eri - Eridanus  
For - Fornax  
Gem - Gemini  
Gru - Grus  
Her - Hercules  
Hor - Horologium  
Hya - Hydra  
Hyi - Hydrus  
Ind - Indus  
Lac - Lacerta

Leo - Leo  
Lep - Lepus  
Lib - Libra  
LMi - Leo Minor  
Lup - Lupus  
Lyn - Lynx  
Lyr - Lyra  
Men - Mensa  
Mic - Microscopium  
Mon - Monoceros  
Mus - Musca  
Nor - Norma  
Oct - Octans  
Oph - Ophiuchus  
Ori - Orion

Pav - Pavo  
Peg - Pegasus  
Per - Perseus  
Phe - Phoenix  
Pic - Pictor  
PsA - Pisces Austrinus  
Psc - Pisces  
Pup - Puppis  
Pyx - Pyxis  
Ret - Reticulum  
Scl - Sculptor  
Sco - Scorpius  
Sct - Scutum  
Ser - Serpens  
Sex - Sextans

Sge - Sagitta  
Sgr - Sagittarius  
Tau - Taurus  
Tel - Telescopium  
TrA - Triangulum  
Australe  
Tri - Triangulum  
Tuc - Tucana  
UMa - Ursa Major  
UMi - Ursa Minor  
Vel - Vela  
Vir - Virgo  
Vol - Volans  
Vul - Vulpecula

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