Volume 45.9 September 2025

Desert Sky Observer

Antelope Valley Astronomy Club

Upcoming Events

September 12: Club Meeting
September 13: Moonwalk@PDW
September 20: DSSP @ Chuchupate
September 27: Lunar Club @ PDW

Every clear night: Personal Star Party

AVAC Calendar

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,

Board Members

President: Phil Wriedt (661) 917-4874
president@avastronomyclub.org

Vice-President: Matt Leone (661) 713-1894
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Secretary: Rose Moore (661) 972-1953
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Treasurer: Rod Girard (661) 803-7838
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Director of Community Development:
Christian Amaya(661) 972-0091
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Appointed Positions

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

Equipment & Library:
vacant
library@avastronomyclub.org

Club Historian: vacant
history@avastronomyclub.org

Webmaster: Steve Trotta (661) 269-5428
webmaster@avastronomyclub.org

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

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

www.avastronomyclub.org
ANTELOPE VALLEY
ASTRONOMY CLUB, INC.

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 20th 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

www.avastronomyclub.org

Visit the Antelope Valley Astronomy Club website at www.avastronomyclub.org/
www.instagram.com/av_astronomyclub

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,

Our last Dark Sky Star Party was scheduled for the 23rd/24th of August at Mt Pinos. The weather for that weekend was looking like partly cloudy, and rather than driving all the way to the top of Mt Pinos, why not just stop at Chuchupate. Well, from Friday to Saturday it went from partly sunny to cloudy over night, even though predictions for Chuchupate remained at about 10% cloud cover after 6pm for Saturday night. In the later Saturday morning I found a webcam on AlertCalifornia.org, Tecuya_Mtn_1 it looks right down on Chuchupate. it was 100% clouds. I contacted everyone who had said they were going, we all agreed it wasn't worth it. I watched that camera the rest of the day and by 5pm all the clouds were all gone. Even with the graininess of the camera, I could make out Scorpio, Sagittarius, and the Milky Way go by. Oh well. Sunday afternoon there were two small fire about 3 mile north, filling the whole valley with smoke.

This month we are going to try again at Chuchupate on the 20th. The Sun sets at 6:53 pm. The Moon is one day before New and will set before the Sun at 6:23pm. Chuchupate is at 5430 ft and the temperature is colder than the Palmdale area. Get there early, set up in daylight. Like with Moonwalks, the weather will rule what happens, with some luck, it will be cloudless, windless and without smoke. I know it's September, but nights still get cold so don't forget warm clothes, food, water and toilet paper.

Our next Moonwalk is on September 13th. Sunset is at 7:01pm and astronomical dusk is late at 8:26 pm. Mars will be up till 8:27pm. Saturn will rise at 7:29 pm, and the Moon won't rise till 11:03 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 42 visitors on the Walk last month. Don't forget warm clothes, jackets, gloves, etc., it's September, 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 will meet again. There will be a 6⅓ day Moon. It will be at Prime Desert Woodland again. In October, on the 24th (the day before the Scary Science Moonwalk) we will participate in the College of the Canyons Fall Star Party.

At the October meeting, we will be holding our Annual Business Meeting and the election of offices for 2026. We really need as many members there as possible. No one will drafted to fill a position without your acceptance.

If anybody knows or has an idea where we can get a speaker, please contact Rose or Matt.

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

Keep Looking Up, Phil

On The Cover

Note: North is 179.8° right of vertical RA: 22h 12' 45.93" DEC: 70° 11' 40.44" (Cepheus)

This image was obtained with the wide-field view of the Mosaic camera on the Mayall 4-meter telescope at Kitt Peak National Observatory. Also known as Barnard 175, vdB 152 is a reflection nebula atop of a dark Bok globule. Embedded in the top right side of the nebula is the Herbig Haro object HH 450, a jet emitted from a newly forming star. The thin, red filaments in the upper-right corner of the image are the remnants of a supernova explosion. It is not yet clear whether or not the supernova remnant will collide with vdB 152. The image was generated with observations in the B (blue), V (green), I (yellow) and Hydrogen-Alpha (red) filters. In this image, North is down and East is to the right.

Credit: T.A. Rector (University of Alaska Anchorage) and H. Schweiker (WIYN and NOIRLab/NSF/AURA)

From the Secretary

By Rose Moore

Members:

Thank you to all the members that supported our club meeting and events this month!

Our club meeting is on Friday September 12th at 7pm, at the SAGE Planetarium. We do not have a speaker yet for the meeting, but Matt and Jeremy will find something interesting to present!

I'm going to bring a sign up sheet at our next meeting, for the club Christmas party in December. We are not collecting money as yet, and will set up a PayPal link on our website in a couple of weeks. The date is Saturday December 6th at Gino's Restaurant in Lancaster. More info to come.

We have a Prime Desert Moon Walk on Saturday September 13th, starting at 7:30pm; weather permitting. We need members with telescopes to help support this event. Set up time is 30-60 mins prior to event. This event is free and open to the public, and you can come out to take the astronomy walk and talk with Jeremy if you don't have a scope!

The dark sky star party for September is on Saturday Sept. 20th, and is at Chuchupate; weather permitting. More info coming in an email.

A Lunar observing session will be held on Saturday Sept. 27th, starting about 7:30 pm at Prime Desert Woodlands. The Moon will be a waxing crescent 31%, setting at 9:51pm. Mars goes down at 7:59pm, and Saturn will be up. We will need members with telescopes as this is also a public event.

Coming up in October will be our Annual Business meeting (please attend!!), another dark sky star party, the College of the Canyons Fall Star party, Spooky Science and the Prime Desert Woodland Moon Walk.

See you there! Rose

from Mt Pinos, Christian Amaya 7/26/2025 11:30 pm
Galaxy S24 Ultra 23mm 25.0 Sec, F/1.7, ISO 1600

Space News

News from around the Net

Astronomers Discover Strange New Type Of Supernova: 'This Is The First Time We Have Seen A Star That Was Essentially Stripped To The Bone' Astronomers have used a new type of extreme supernova in which a massive star was stripped right "down to the bone" to better understand the process of stellar life and death. When other massive stars die in supernova explosions, astronomers detect strong signals of light elements like hydrogen and helium that existed at the surface of the star. However, in this supernova, designated SN2021yfj and located 2.2 billion light-years from Earth, this team found a different chemical signature. This contained traces of heavier elements like silicon, sulfur, and argon that originate from deeper within the progenitor star. . . . .(continued at https://www.space.com/astronomy/astronomers-discover-strange-new-type-of-supernova-this-is-the-first-time-we-have-seen-a-star-that-was-essentially-stripped-to-the-bone)

Inouye Solar Telescope Delivers Record-Breaking Images Of Solar Flare And Coronal Loops
The highest-resolution images of a solar flare captured at the H-alpha wavelength (656.28 nm) ever captured may reshape how we understand the sun's magnetic architecture—and improve space weather forecasting. Using the Daniel K. Inouye Solar Telescope, built and operated by the National Solar Observatory (NSO), astronomers captured dark coronal loop strands with unprecedented clarity during the decay phase of an X1.3-class flare on August 8, 2024, at 20:12 UT.. . . .(continued at https://phys.org/news/2025-08-inouye-solar-telescope-images-flare.html#google_vignette)

What, Exactly, Is Space-Time?
Few ideas in modern science have reshaped our understanding of reality more profoundly than space-time—the interwoven fabric of space and time at the heart of Albert Einstein's theory of relativity. Space-time is frequently described as the "fabric of reality." In some accounts, this fabric is referred to as a fixed, four-dimensional "block universe"—a complete map of all events, past, present and future. In others, it's a dynamic field that bends and curves in response to gravity. But what does it really mean to say that space-time exists? What kind of thing is it—is space-time structure, substance or metaphor?. . . . (continued at https://phys.org/news/2025-08-space.html)

Rare Interstellar Comet Buzzes Solar System
Interstellar comet 3I/ATLAS is streaking across the solar system at more than 220,000 kilometers per hour as you read this. With a little luck, it might just turn up in your telescope this fall. On July 1st, the 0.5-m f/2 Schmidt reflector at Rio Hurtado, Chile captured images of an apparent 18th magnitude asteroid during the course of the Asteroid-Terrestrial-Impact Last Alert System (ATLAS) near-Earth object search program. When bigger telescopes were brought to bear on the newcomer, they revealed a faint bit of fuzz around the "star" that extended into a teardrop shape — clear evidence that it was in fact a comet. It received the preliminary designation C/2025 N1 (ATLAS). . . . (continued at https://skyandtelescope.org/astronomy-news/rare-interstellar-comet-buzzes-solar-system/)

Roman Space Telescope Joins Earth's Asteroid Defence Team
When NASA's Nancy Grace Roman Space Telescope launches in October 2026, it won't just be peering into the distant universe to study dark energy and exoplanets. This powerful observatory will also serve as Earth's newest guardian, helping scientists track and understand potentially dangerous asteroids and comets that could threaten our planet. The Roman Space Telescope will position itself at the Earth-Sun L2 Lagrange point, a gravitationally stable location about 1.5 million kilometres from Earth in the opposite direction of the Sun. From this vantage point, the telescope will use its sensitive near infrared vision to study near Earth objects (NEOs), the asteroids and comets whose orbits bring them close to our planet. . . . (continued at https://www.universetoday.com/articles/roman-space-telescope-joins-earths-asteroid-defence-team)

Space News

News from around the Net

Red Galaxies Provide New Insights Into The Birth Of The Universe

Images taken with the MIRI infrared camera on the James Webb Space Telescope (JWST) have made it possible to observe the first galaxies in long-wavelength infrared light for the first time. Alongside a recent study published in Astronomy and Astrophysics, these images provide new insights into how the first galaxies formed over 13 billion years ago. "In the images, we can see the most distant galaxies known to us," says Göran Östlin, Professor of Astronomy at Stockholm University's Department of Astronomy. In the study, the research team present their observations of the Hubble Ultra Deep Field (HUDF), the area of the sky that has been observed most frequently by various telescopes, including Hubble and James Webb in space and ground-based telescopes such as VLT and ALMA. . . .(continued at https://phys.org/news/2025-08-red-galaxies-insights-birth-universe.html#google_vignette)

These Rare Star Systems Are A New Tool To Understand Brown Dwarfs

There are things astrophysicists know and things they don't know about brown dwarfs. They know that as they were forming and accreting mass, they failed to gain enough mass to trigger hydrogen fusion and become stars. But they're too massive to be gas giant planets like Jupiter because they do fuse some deuterium. So brown dwarfs are stuck in an astrophysical no-man's-land between star and planet. They're often referred to as 'failed stars'. Because they're so cool and so dim, brown dwarfs difficult to study. Another avenue of understanding opens up when brown dwarfs are in proximity to other stars. That's why the discovery of a rare quadruple star system containing a binary pair of M dwarfs and a binary pair of brown dwarfs 82 light-years away is so significant. It provides a way around the "mass-degeneracy problem". . . .(continued at https://www.universetoday.com/articles/these-rare-star-systems-are-a-new-tool-to-understand-brown-dwarfs)

Baby Planet Clears Gap In Young Protoplanetary Disk

With the Very Large Telescope in Chile, astronomers have spotted a planet forming around a star 430 light-years away. For the first time ever, an international team of astronomers led by PhD student Richelle van Capelleveen (Leiden Observatory, The Netherlands) has directly imaged a baby planet orbiting in the gap it has itself cleared within the huge, multi-ringed protoplanetary disk of a young star. The 5-million-year-old star, TYC 5709-354-1, is 430 light-years away, in the outskirts of the Scorpius-Centaur association. . . . (continued at https://skyandtelescope.org/astronomy-news/baby-planet-clears-gap-in-young-protoplanetary-disk/)

Did Earth Once Have A Ring?

Amid the cold silence of the main belt, a giant rock drifts through space. It has existed for billions of years unchanged, but today, it will be irrevocably broken. Another rocky object hurtles toward it, smashing the asteroid and sending a shower of shards outward. One dangerously large fragment careens toward the Sun on a path that threatens Earth. After a months-long journey, it reaches the planet — but there's no impact. The asteroid chunk's trajectory has brought it so close to Earth that it can't escape, but not near enough for a direct hit. Instead, it loops around the planet, caught by a new gravitational tether. . . .(continued at https://www.astronomy.com/science/did-earth-once-have-a-ring/)

Cosmic Butterfly Unlocks Secrets Of How Rocky Planets Form

The Butterfly Nebula, officially known as NGC 6302, earned its name from its distinctive wing like lobes that spread in opposite directions from a central dusty band. This striking shape isn't just beautiful, it's a natural laboratory where scientists can study the very processes that create the raw materials for rocky planets like Earth. At the centre of this beautiful object lies one of the hottest known stellar cores in our Galaxy, blazing at 220,000 Kelvin. This ancient remnant of a Sun like star . . . (continued at https://www.universetoday.com/articles/cosmic-butterfly-unlocks-secrets-of-how-rocky-planets-form)

Webb Investigates Complex Heart Of A Cosmic Butterfly

weic2517 — Photo Release 27 August 2025

The NASA/ESA/CSA James Webb Space Telescope has revealed new details in the core of the Butterfly Nebula, NGC 6302. From the dense, dusty torus that surrounds the star hidden at the centre of the nebula to its outflowing jets, the Webb observations reveal many new discoveries that paint a never-before-seen portrait of a dynamic and structured planetary nebula.

The Butterfly Nebula, located about 3400 light-years away in the constellation Scorpius, is one of the best-studied planetary nebulae in our galaxy. This stunning nebula was previously imaged by the NASA/ESA Hubble Space Telescope. Now, Webb has captured a new view of this nebula.

Planetary nebulae are among the most beautiful and most elusive creatures in the cosmic zoo. These nebulae form when stars with masses between about 0.8 and 8 times the mass of the Sun shed most of their mass at the end of their lives. The planetary nebula phase is fleeting, lasting only about 20 000 years.

Contrary to the name, planetary nebulae have nothing to do with planets: the naming confusion began several hundred years ago, when astronomers reported that these nebulae appeared round, like planets. The name stuck, even though many planetary nebulae aren't round at all - and the Butterfly Nebula is a prime example of the fantastic shapes that these nebulae can take.

The Butterfly Nebula is a bipolar nebula, meaning that it has two lobes that spread in opposite directions, forming the 'wings' of the butterfly. A dark band of dusty gas poses as the butterfly's 'body'. This band is actually a doughnut-shaped torus that's being viewed from the side, hiding the nebula's central star - the ancient core of a Sun-like star that energises the nebula and causes it to glow. The dusty doughnut may be responsible for the nebula's insectoid shape by preventing gas from flowing outward from the star equally in all directions.

This new Webb image zooms in on the centre of the Butterfly Nebula and its dusty torus, providing an unprecedented view of its complex structure. The image uses data from Webb's Mid-InfraRed Instrument (MIRI) working in integral field unit mode. This mode combines a camera and a spectrograph to take images at many different wavelengths simultaneously, revealing how an object's appearance changes with wavelength. The research team supplemented the Webb observations with data from the Atacama Large Millimetre/submillimetre Array, a powerful network of radio dishes.

Researchers analysing these Webb data identified nearly 200 spectral lines, each of which holds information about the atoms and molecules in the nebula. These lines reveal nested and interconnected structures traced by different chemical species.

The research team has pinpointed the location of the Butterfly Nebula's central star, which heats a previously undetected dust cloud around it, making the latter shine brightly at the mid-infrared wavelengths that MIRI is sensitive to. The location of the nebula's central star has remained elusive until now, because this enshrouding dust renders it invisible at optical

wavelengths. Previous searches for the star lacked the combination of infrared sensitivity and resolution necessary to spot its obscuring warm dust cloud. With a temperature of 220 000 Kelvin, this is one of the hottest known central stars in a planetary nebula in our galaxy.

This blazing stellar engine is responsible for the nebula's gorgeous glow, but its full power may be channelled by the dense band of dusty gas that surrounds it: the torus. The new Webb data show that the torus is composed of crystalline silicates like quartz as well as irregularly shaped dust grains. The dust grains have sizes on the order of a millionth of a metre - large, as far as cosmic dust is considered - indicating that they have been growing for a long time.

Outside the torus, the emission from different atoms and molecules takes on a multilayered structure. The ions that require the largest amount of energy to form are concentrated close to the centre, while those that require less energy are found farther from the central star. Iron and nickel are particularly interesting, tracing a pair of jets that blast outward from the star in opposite directions.

Intriguingly, the team also spotted light emitted by carbon-based molecules known as polycyclic aromatic hydrocarbons, or PAHs. They form flat, ring-like structures, much like the honeycomb shapes found in beehives. On Earth, we often find PAHs in smoke from campfires, car exhaust, or burnt toast. Given the location of the PAHs, the research team suspects that these molecules form when a 'bubble' of wind from the central star bursts into the gas that surrounds it. This may be the first-ever evidence of PAHs forming in a oxygen-rich planetary nebula, providing an important glimpse into the details of how these molecules form.

The results have been published today in the *Monthly Notices of the Royal Astronomical Society*.

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).

Links

- Science paper
- Release on ESA website
- Release on STFC website

Contacts

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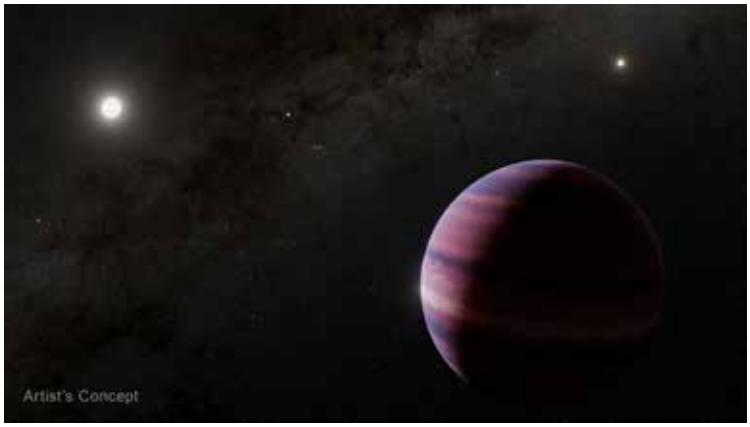
Webb Finds New Evidence For Planet Around Closest Solar Twin

weic2515 — Science Release 7 August 2025



Astronomers using the NASA/ESA/CSA James Webb Space Telescope have found strong evidence of a giant planet orbiting a star in the stellar system closest to our own Sun. At just 4 light-years away from Earth, the Alpha Centauri triple star system has long been a compelling target in the search for worlds beyond our solar system.

Visible only from Earth's Southern hemisphere, it's made up of the binary Alpha Centauri A and Alpha Centauri B, both Sun-like stars, and the faint red dwarf star Proxima Centauri. Alpha Centauri A is the third brightest star in the night sky. While there are three confirmed planets orbiting Proxima Centauri, the presence of other worlds surrounding Alpha Centauri A and Alpha Centauri B has proved challenging to confirm.

Now, Webb's observations from its Mid-Infrared Instrument (MIRI) are providing the strongest evidence to date of a gas giant orbiting Alpha Centauri A. The results have been accepted in a series of two papers in The Astrophysical Journal Letters.

If confirmed, the planet would be the closest to Earth that orbits in the habitable zone of a Sun-like star. However, because the planet candidate is a gas giant, scientists say it would not support life as we know it.

"With this system being so close to us, any exoplanets found would offer our best opportunity to collect data on planetary systems other than our own. Yet, these are incredibly challenging observations to make, even with the world's most powerful space telescope, because these stars are so bright, close, and move across the sky quickly," said Charles Beichman, NASA's Jet Propulsion Laboratory and the NASA Exoplanet Science Institute at Caltech's IPAC astronomy center, co-first author on the new papers. "Webb was designed and optimized to find the most distant galaxies in the universe. The operations team at the Space Telescope Science Institute had to come up with a custom observing sequence just for this target, and their extra effort paid off spectacularly."

Several rounds of meticulously planned observations by Webb, careful analysis by the research team, and extensive computer modeling helped determine that the source seen in Webb's image is likely to be a planet, and not a background object (like a galaxy), foreground object (a passing asteroid), or other detector or image artifact.

The first observations of the system took place in August 2024, using the coronagraphic mask aboard MIRI to block Alpha Centauri A's light. While extra brightness from the nearby companion star Alpha Centauri B complicated the analysis, the team was able to subtract out the light from both stars to reveal an object over 10,000 times fainter than Alpha Centauri A, separated from the star by about two times the distance between the Sun and Earth.

While the initial detection was exciting, the research team needed more data to come to a firm conclusion. However, additional observations of the system in February 2025 and April 2025 (using Director's Discretionary Time) did not reveal any objects like the one identified in August 2024.

"We are faced with the case of a disappearing planet! To investigate this mystery, we used computer models to simulate millions of potential orbits, incorporating the knowledge gained when we saw the planet, as well as when we did not," said PhD student Aniket Sanghi of the California Institute of Technology in Pasadena, California. Sanghi is a co-first author on the two papers covering the team's research.

In these simulations, the team took into account both the 2019 sighting of a potential exoplanet candidate by the European Southern Observatory's Very Large Telescope, the new data from Webb, and considered orbits that would be gravitationally stable in the presence of Alpha Centauri B, meaning the planet wouldn't get flung out of the system.

Researchers say a non-detection in the second and third round of observations with Webb isn't surprising.

“We found that in half of the possible orbits simulated, the planet moved too close to the star and wouldn’t have been visible to Webb in both February and April 2025,” said Sanghi.

Based on the brightness of the planet in the mid-infrared observations and the orbit simulations, researchers say it could be a gas giant approximately the mass of Saturn orbiting Alpha Centauri A in an elliptical path varying between 1 to 2 times the distance between Sun and Earth.

“These are some of the most demanding observations we’ve done so far with MIRI’s coronagraph,” said Pierre-Olivier Lagage, of CEA, France, who is a co-author on the papers and was the French lead for the development of MIRI. “When we were developing the instrument we were eager to see what we might find around Alpha Centauri, and I’m looking forward to what it will reveal to us next!”

“If confirmed, the potential planet seen in the Webb image of Alpha Centauri A would mark a new milestone for exoplanet imaging efforts,” Sanghi says. “Of all the directly imaged planets, this would be the closest to its star seen so far. It’s also the most similar in temperature and age to the giant planets in our solar system, and nearest to our home, Earth,” he says. “Its very existence in a system of two closely separated stars would challenge our understanding of how planets form, survive, and evolve in chaotic environments.”

If confirmed by additional observations, the team’s results could transform the future of exoplanet science.

“This would become a touchstone object for exoplanet science, with multiple opportunities for detailed characterization by Webb and other observatories,” said Beichman.

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, R. Hurt (Caltech/IPAC)

Links

- Science paper (C. Beichman et al.)
- Science paper (A. Sanghi et al.)
- Release on ESA website
- Release on STScI website
- Release on NASA website

Contacts

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ESA Newsroom and Media Relations Office
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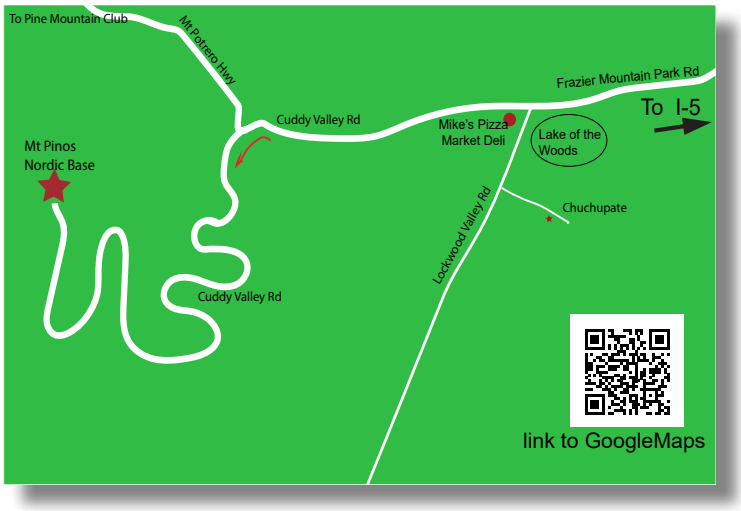
Dark Sky Observing Sites

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.

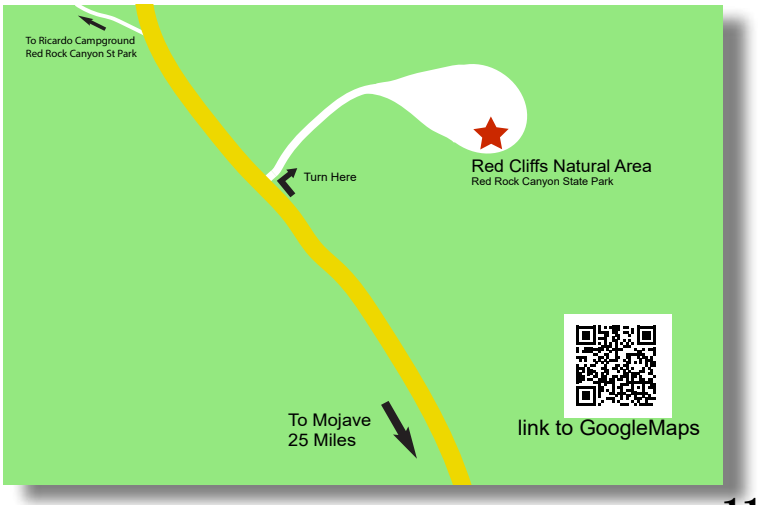
To get there: From I-5, get off at Frazier Mountain Park Rd and drive west about 7 miles to Mike's Pizza/ Market Deli at Lockwood Valley Rd. Keep on the main roadway (don't turn left to go to Chuchupate). Continue past Mike's Pizza on Cuddy Valley Rd (the road's new name) about 5 miles. Continue straight (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.

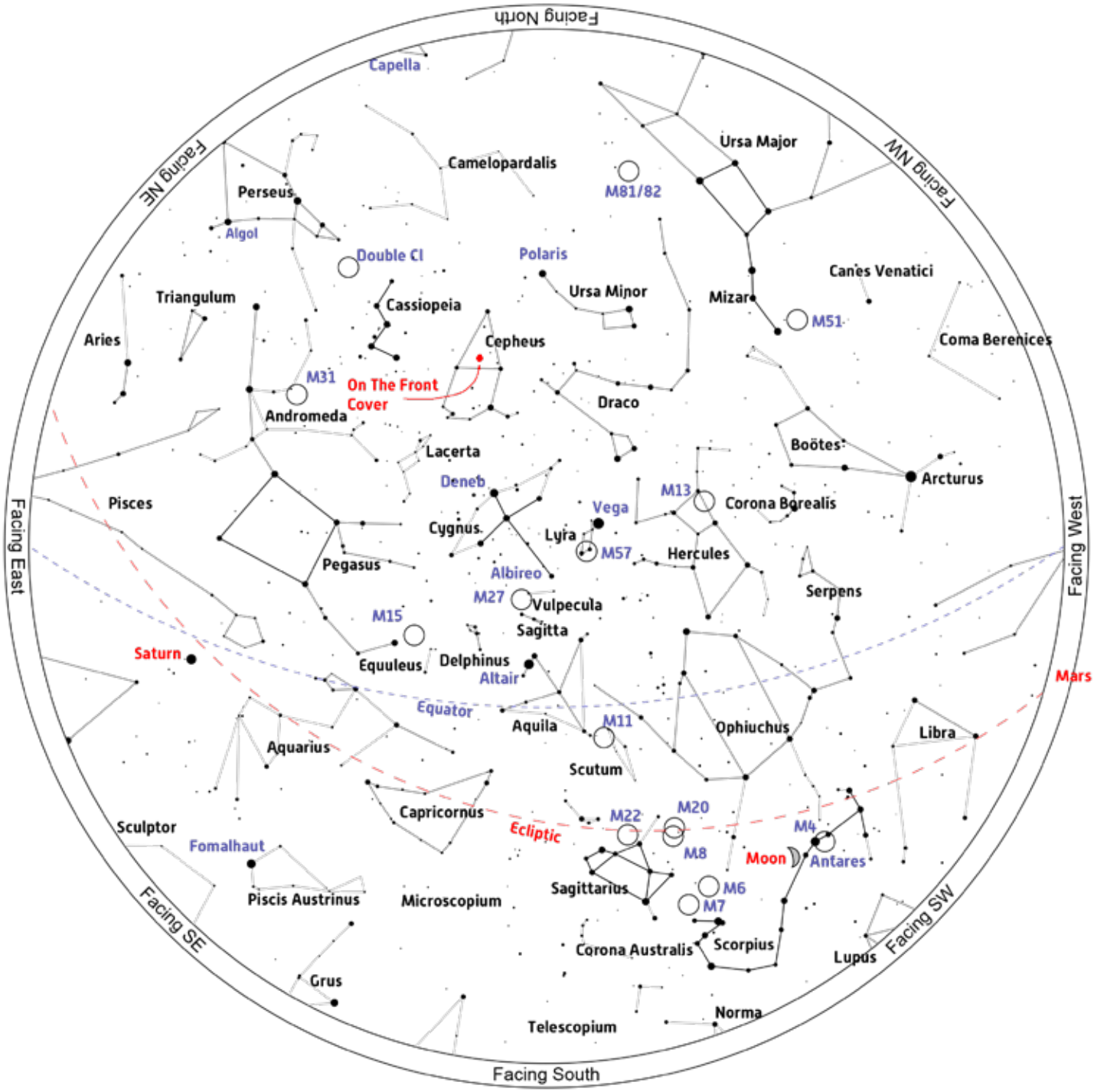
RV7F+FF Frazier Park, California (link to GoogleMaps)

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 September 27, 20:00 (UTC -07:00)

Powered by: Heavens-Above.com

Solar System Summary

The **Sun** starts the month in central Leo ending the month in central Virgo.

The Planets

Mercury is so close to the Sun to be observed. Archives superior conjunction on the 13th.

Venus spends the mornings moving normally from Cancer, passing across the most of Leo. There is less than ¼° of separation with the 6% waning Moon on the morning of the 16th.

Mars spends the month in the eastern Virgo. On the 24th the 6% waxing Moon passes by several hours after Mars sets.

Jupiter rising before midnight continues it's normal motion heading east central Gemini. On the 16th the 28% waning Moon passes by 4¼° north

Saturn rising just after sunset moving in retrograde in Pisces at mag 0.6 passing into Aquarius at the end of the month. On the morning of the 8th, as the full Moon is setting, Saturn is less than 4° to the south.

Uranus moves normally at mag 5.7 until the 6th when it begins its retrograde motion in eastern Taurus, about 4° south of the Pleiades.

Neptune is moving in retrograde in southern Pisces at mag 7.8, spending the month losing the chase after Saturn less than 1½° to 3° to the south. The 98% waning Moon passes less that 2° north on the afternoon of the 8th.

Dwarf Planets

134340 Pluto spends the month, again, in retrograde, still in western Capricorn, at mag 14.4. The 68% waxing Moon passes by ½° south at 3pm on October 1st.

1 Ceres spends the month crawling across Cetus in retrograde at mag 8.4.

2 Pallas continues it's retrograde motion making a big loop through eastern Delphinus and into Aquila at magnitude 9.8.

3 Juno continues drifting through Libra, at mag 11.4.

4 Vesta in normal moving out of Libra at mag 8 and into the Blue Horsehead in Scorpius on the 24th and 25th.

Moon Phases

First Qtr Sept | Full Sept | Third Qtr Sept | New Sept

Sun and Moon Rise and Set*

Date	Moonrise	Moonset	Sunrise	Sunset
9/1/2025	15:29	23:52	06:26	19:18
9/5/2025	18:18	04:03	06:29	19:12
9/10/2025	20:48	09:50	06:32	19:05
9/15/2025	00:04	15:33	06:36	18:58
9/20/2025	05:31	18:23	06:39	18:51
9/25/2025	10:24	20:33	06:43	18:44
9/30/2025	14:57	23:39	06:47	18:37

Planet Data*

September 1

	Rise	Transit	Set	Mag	Phase%
Mercury	05:31	12:13	19:09	-1.49	89.9
Venus	03:56	10:52	17:47	-3.94	84.6
Mars	09:24	15:09	20:23	1.59	96.2
Jupiter	02:19	09:27	15:48	-2.11	99.4
Saturn	20:14	02:13	07:09	0.61	99.9

September 15

	Rise	Transit	Set	Mag	Phase%
Mercury	06:45	12:58	19:09	-1.49	99.6
Venus	04:22	11:05	17:47	-3.94	88.0
Mars	09:13	14:48	20:23	1.59	96.9
Jupiter	01:35	08:42	15:48	-2.11	99.2
Saturn	19:16	01:11	07:09	0.61	100.0

September 30

	Rise	Transit	Set	Mag	Phase%
Mercury	07:50	13:31	19:10	-0.50	93.2
Venus	04:52	11:16	17:40	-3.94	91.2
Mars	09:03	14:27	19:51	1.56	97.7
Jupiter	00:42	07:21	14:57	-2.19	99.1
Saturn	18:14	00:07	06:04	0.65	99.9

*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 September 20, 2025. The list is sorted by the transit time of the object.

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC5669		Galaxy	Boo	14h 32m 44s	+09° 53.4'	12.0	08:34	15:05	21:35
NGC5689		Galaxy	Boo	14h 35m 30s	+48° 44.5'	11.9	05:31	15:07	00:44
M102	Spindle Galaxy (duplicate of M101?)	Galaxy	Dra	15h 06m 30s	+55° 45.7'	10.8	Circ	15:38	Circ
NGC5875		Galaxy	Boo	15h 09m 13s	+52° 31.6'	13.0	05:09	15:41	02:13
NGC5907	Splinter Galaxy	Galaxy	Dra	15h 15m 54s	+56° 19.7'	11.4	Circ	15:48	Circ
NGC5882		P Neb	Lup	15h 16m 50s	-45° 38.9'	11.0	12:44	15:49	18:53
NGC5897		Globular	Lib	15h 17m 24s	-21° 00.6'	8.6	10:48	15:49	20:50
M5	NGC5904	Globular	Ser	15h 18m 33s	+02° 04.9'	7.0	09:42	15:50	21:59
Barnard228	B228	DkNeb	Lup	15h 44m 00s	-34° 30.0'		12:06	16:16	20:26
IC4593	White Eyed Pea	P Neb	Her	16h 11m 44s	+12° 04.3'	11.0	10:07	16:44	23:21
IC4592	Jabbah	Neb	Sco	16h 11m 59s	-19° 27.4'		11:38	16:44	21:50
M80	NGC6093	Globular	Sco	16h 17m 03s	-22° 58.5'	8.5	11:54	16:49	21:44
IC4601		Neb	Sco	16h 20m 18s	-20° 04.9'		11:48	16:52	21:56
Abell38		P Neb	Sco	16h 23m 17s	-31° 44.9'	11.7	12:33	16:55	21:17
M4	Cat's Eye	Globular	Sco	16h 23m 35s	-26° 31.5'	7.5	12:13	16:55	21:38
IC4603	Rho Ophiuchi Complex [1]	Neb	Oph	16h 25m 24s	-24° 28.0'		12:08	16:57	21:47
IC4604	Rho Ophiuchi Complex [2]	Neb	Oph	16h 25m 33s	-23° 26.5'		12:04	16:57	21:50
NGC6124	C75	Open	Sco	16h 25m 36s	-40° 40.0'	5.8	13:20	16:57	20:35
Abell39		P Neb	Her	16h 27m 33s	+27° 54.5'	12.9	09:30	16:59	00:29
IC4605		Neb	Sco	16h 30m 12s	-25° 06.8'		12:15	17:02	21:49
NGC6153		P Neb	Sco	16h 31m 31s	-40° 15.2'	12.0	13:23	17:03	20:44
NGC6181		Galaxy	Her	16h 32m 21s	+19° 49.5'	11.9	10:03	17:04	00:05
NGC6171		Globular	Oph	16h 32m 32s	-13° 03.1'	8.1	11:39	17:04	22:30
NGC6178		Open	Sco	16h 35m 47s	-45° 38.6'	7.2	14:03	17:08	20:12
NGC6193	C82	Open	Ara	16h 41m 18s	-48° 46.0'	5.2	14:36	17:13	19:50
M13	Great Hercules Cluster	Globular	Her	16h 41m 41s	+36° 27.5'	7.0	09:06	17:14	01:21
NGC6210	Turtle Planetary Nebula	P Neb	Her	16h 44m 30s	+23° 48.0'	9.0	10:02	17:16	00:31
Barnard44a	B44a	DkNeb	Sco	16h 44m 45s	-40° 20.0'		13:37	17:17	20:56
NGC6204		Open	Ara	16h 46m 09s	-47° 01.0'	8.2	14:25	17:18	20:11
M12	Gumball Globular	Globular	Oph	16h 47m 14s	-01° 56.8'	8.0	11:22	17:19	23:16
NGC6231	Table of Scorpius	Open	Sco	16h 54m 00s	-41° 48.0'	2.6	13:55	17:26	20:57
IC4628	Prawn Nebula	Neb	Sco	16h 56m 58s	-40° 27.3'		13:50	17:29	21:08
NGC6254		Globular	Oph	16h 57m 09s	-04° 05.9'	6.6	11:38	17:29	23:20
Barnard47	B47	DkNeb	Oph	16h 59m 42s	-22° 38.0'		12:36	17:32	22:27
M62	Flickering Globular	Globular	Oph	17h 01m 13s	-30° 06.7'	8.0	13:05	17:33	22:01

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M19	NGC6273	Globular	Oph	17h 02m 38s	-26° 16.0'	8.5	12:51	17:35	22:18
Barnard51	B51	DkNeb	Oph	17h 04m 44s	-22° 15.0'		12:40	17:37	22:34
IC4637		P Neb	Sco	17h 05m 10s	-40° 53.1'	14.0	14:01	17:37	21:14
Barnard56	B56	DkNeb	Sco	17h 08m 48s	-32° 05.0'		13:20	17:41	22:01
Barnard59	B59,Pipe Nebula	DkNeb	Oph	17h 11m 23s	-27° 29.0'		13:05	17:43	22:22
NGC6302	Bug Nebula	P Neb	Sco	17h 13m 42s	-37° 06.0'	9.6	13:48	17:46	21:43
Barnard251	B251	DkNeb	Oph	17h 13m 48s	-20° 09.0'		12:42	17:46	22:50
Barnard63	B63	DkNeb	Oph	17h 16m 00s	-21° 28.0'		12:48	17:48	22:48
M92	NGC6341	Globular	Her	17h 17m 07s	+43° 08.1'	7.5	09:01	17:49	02:37
M9	NGC6333	Globular	Oph	17h 19m 12s	-18° 31.0'	9.0	12:42	17:51	23:00
NGC6326		P Neb	Ara	17h 20m 46s	-51° 45.2'	12.0	15:51	17:53	19:54
Barnard256	B256	DkNeb	Oph	17h 22m 12s	-28° 49.0'		13:21	17:54	22:28
Barnard67a		DkNeb	Oph	17h 22m 30s	-21° 53.0'		12:56	17:54	22:53
Barnard71	B71	DkNeb	Oph	17h 23m 02s	-24° 00.0'		13:04	17:55	22:46
NGC6357	Lobster Nebula	Neb	Sco	17h 24m 43s	-34° 12.1'		13:46	17:57	22:08
IC4651		Open	Ara	17h 24m 52s	-49° 56.5'	6.9	15:32	17:57	20:21
Abell41		P Neb	Ser	17h 29m 04s	-15° 13.3'	13.9	12:42	18:01	23:20
Abell42		P Neb	Oph	17h 31m 31s	-08° 19.1'	14.6	12:24	18:03	23:43
Barnard78	B78	DkNeb	Oph	17h 32m 00s	-25° 35.0'		13:18	18:04	22:49
NGC6388		Globular	Sco	17h 36m 17s	-44° 44.1'	6.9	14:57	18:08	21:19
M14	NGC6402	Globular	Oph	17h 37m 36s	-03° 14.7'	9.5	12:16	18:09	00:03
Barnard276	B276	DkNeb	Oph	17h 39m 39s	-19° 49.0'		13:07	18:12	23:17
M6	Butterfly Cluster	Open	Sco	17h 40m 20s	-32° 15.2'	4.5	13:53	18:12	22:32
NGC6397	C86	Globular	Ara	17h 40m 42s	-53° 40.0'	5.6	16:43	18:13	19:42
NGC6426		Globular	Oph	17h 44m 55s	+03° 10.1'	11.2	12:05	18:17	00:28
Barnard83a	B83a	DkNeb	Sgr	17h 45m 18s	-20° 00.0'		13:13	18:17	23:22
IC4665		Open	Oph	17h 46m 30s	+05° 39.0'	4.2	12:00	18:18	00:37
NGC6445	Crescent Nebula	P Neb	Sgr	17h 49m 15s	-20° 00.6'	13.0	13:17	18:21	23:26
NGC6503		Galaxy	Dra	17h 49m 27s	+70° 08.6'	10.2	Circ	18:21	Circ
NGC6441		Globular	Sco	17h 50m 13s	-37° 03.0'	7.4	14:25	18:22	22:20
M7	Ptolemy's Cluster	Open	Sco	17h 53m 51s	-34° 47.6'	3.5	14:17	18:26	22:34
IC4670		Neb	Sgr	17h 55m 07s	-21° 44.6'		13:28	18:27	23:26
NGC6501		Galaxy	Her	17h 56m 04s	+18° 22.3'	12.3	11:32	18:28	01:24
M23	NGC6494	Open	Sgr	17h 57m 04s	-18° 59.1'	6.0	13:21	18:29	23:37
NGC6543	Cat Eye Nebula	P Neb	Dra	17h 58m 36s	+66° 38.0'	8.1	Circ	18:30	Circ
NGC6496		Globular	Sco	17h 59m 04s	-44° 16.0'	9.2	15:16	18:31	21:46
M20	Trifid Nebula	Open+D Neb	Sgr	18h 02m 42s	-22° 58.2'	5.0	13:40	18:35	23:29
M8	Lagoon Nebula	Open+D Neb	Sgr	18h 03m 41s	-24° 22.7'	5.0	13:46	18:36	23:25
Barnard295	B295	DkNeb	Sgr	18h 04m 05s	-31° 09.0'		14:12	18:36	23:00

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M21	NGC6531	Open	Sgr	18h 04m 13s	-22° 29.3'	7.0	13:40	18:36	23:32
NGC6530		Open	Sgr	18h 04m 31s	-24° 21.5'	4.6	13:47	18:36	23:26
NGC6528		Globular	Sgr	18h 04m 50s	-30° 03.3'	9.5	14:08	18:37	23:05
IC4684		Neb	Sgr	18h 09m 08s	-23° 26.1'		13:48	18:41	23:34
IC4685		Neb	Sgr	18h 09m 18s	-23° 59.2'		13:50	18:41	23:32
Barnard303		DkNeb	Sgr	18h 09m 28s	-23° 59.0'		13:50	18:41	23:32
IC1274		Neb	Sgr	18h 09m 51s	-23° 38.8'		13:49	18:42	23:34
IC1275		Neb	Sgr	18h 10m 07s	-23° 45.7'		13:50	18:42	23:34
NGC6572		P Neb	Oph	18h 12m 06s	+06° 51.2'	9.0	12:22	18:44	01:06
NGC6567		P Neb	Sgr	18h 13m 45s	-19° 04.5'	12.0	13:38	18:46	23:53
IC4701		Neb	Sgr	18h 16m 36s	-16° 38.0'		13:33	18:48	00:03
Barnard93	B93	DkNeb	Sgr	18h 16m 53s	-18° 03.0'		13:38	18:49	23:59
IC1284		Neb	Sgr	18h 17m 39s	-19° 40.3'		13:44	18:50	23:55
M24	Small Sagittarius Star Cloud	Open	Sgr	18h 18m 26s	-18° 24.3'	4.5	13:41	18:50	00:00
M16	Eagle Nebula	Open+D Neb	Ser	18h 18m 48s	-13° 48.3'	6.5	13:27	18:51	00:14
M18	Black Swan	Open	Sgr	18h 19m 58s	-17° 06.1'	8.0	13:38	18:52	00:05
M17	Horseshoe Nebula	Open+D Neb	Sgr	18h 20m 47s	-16° 10.3'	7.0	13:36	18:53	00:09
HR6923	HD170073	Mult	Dra	18h 23m 54s	+58° 48.0'	5.0	Circ	18:56	Circ
M28	NGC6626	Globular	Sgr	18h 24m 33s	-24° 52.1'	8.5	14:08	18:56	23:44
Barnard95	B95	DkNeb	Sct	18h 25m 35s	-11° 44.0'		13:28	18:57	00:27
Barnard97	B97	DkNeb	Sct	18h 29m 05s	-09° 55.0'		13:26	19:01	00:36
Abell44		P Neb	Sgr	18h 30m 11s	-16° 45.4'	12.6	13:47	19:02	00:17
NGC6637		Globular	Sgr	18h 31m 23s	-32° 20.8'	7.7	14:44	19:03	23:22
IC1287		Neb	Sct	18h 31m 26s	-10° 47.7'		13:31	19:03	00:36
M25	M25	Open	Sgr	18h 31m 42s	-19° 07.0'	6.5	13:56	19:04	00:11
IC4725		Open	Sgr	18h 31m 48s	-19° 06.7'	4.6	13:56	19:04	00:11
NGC6642		Globular	Sgr	18h 31m 54s	-23° 28.5'	8.8	14:11	19:04	23:57
NGC6644		P Neb	Sgr	18h 32m 35s	-25° 07.7'	12.0	14:17	19:04	23:52
NGC6647		Open	Sgr	18h 32m 49s	-17° 13.6'	8.0	13:52	19:05	00:18
IC4732		P Neb	Sgr	18h 33m 55s	-22° 38.6'	13.0	14:10	19:06	00:01
NGC6656	Crackerjack Cluster	Globular	Sgr	18h 36m 24s	-23° 54.2'	5.1	14:17	19:08	00:00
IC4756		Open	Ser	18h 38m 54s	+05° 27.0'	5.0	12:53	19:11	01:29
NGC6681		Globular	Sgr	18h 43m 12s	-32° 17.4'	8.1	14:56	19:15	23:34
NGC6694		Open	Sct	18h 45m 18s	-09° 23.0'	8.0	13:41	19:17	00:54
IC4776		P Neb	Sgr	18h 45m 51s	-33° 20.5'	12.0	15:03	19:18	23:33
Barnard318	B318	DkNeb	Sct	18h 49m 42s	-06° 23.0'		13:37	19:22	01:07
M11	Wild Duck Cluster	Open	Sct	18h 51m 05s	-06° 16.1'	7.0	13:38	19:23	01:08
M57	Ring Nebula	P Neb	Lyr	18h 53m 35s	+33° 01.7'	9.5	11:34	19:25	03:17
NGC6715		Globular	Sgr	18h 55m 03s	-30° 28.7'	7.7	15:00	19:27	23:54

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC6723		Globular	Sgr	18h 59m 33s	-36° 37.9'	7.3	15:32	19:31	23:31
Barnard128	B128	DkNeb	Aql	19h 01m 40s	-04° 34.0'		13:44	19:34	01:24
NGC6729	C68	BrNeb	CrA	19h 01m 54s	-36° 57.0'		15:36	19:34	23:32
Barnard326	B326	DkNeb	Aql	19h 03m 00s	-00° 23.0'		13:33	19:35	01:37
NGC6749		Globular	Aql	19h 05m 15s	+01° 54.0'	11.1	13:29	19:37	01:45
Barnard329	B329	DkNeb	Aql	19h 06m 59s	+03° 11.0'		13:27	19:39	01:50
NGC6760		Globular	Aql	19h 11m 12s	+01° 01.8'	9.1	13:37	19:43	01:49
Abell56		P Neb	Aql	19h 13m 07s	+02° 52.8'	12.4	13:34	19:45	01:56
NGC6772		P Neb	Aql	19h 14m 36s	-02° 42.4'	14.0	13:51	19:46	01:42
Barnard138	B138	DkNeb	Aql	19h 16m 00s	+00° 13.0'		13:45	19:48	01:51
M56	NGC6779	Globular	Lyr	19h 16m 36s	+30° 11.0'	9.5	12:10	19:48	03:27
NGC6778		P Neb	Aql	19h 18m 25s	-01° 35.7'	13.0	13:52	19:50	01:49
Abell61		P Neb	Cyg	19h 19m 10s	+46° 14.5'	13.0	10:39	19:51	05:03
Barnard140	B140	DkNeb	Aql	19h 19m 49s	+05° 13.0'		13:34	19:52	02:09
NGC6790		P Neb	Aql	19h 22m 57s	+01° 30.8'	10.0	13:48	19:55	02:02
NGC6803		P Neb	Aql	19h 31m 16s	+10° 03.3'	11.0	13:32	20:03	02:34
NGC6804		P Neb	Aql	19h 31m 35s	+09° 13.5'	12.0	13:35	20:03	02:32
Abell62		P Neb	Aql	19h 33m 18s	+10° 37.0'	13.0	13:32	20:05	02:38
NGC6807		P Neb	Aql	19h 34m 34s	+05° 41.0'	14.0	13:48	20:06	02:25
M55	NGC6809	Globular	Sgr	19h 40m 00s	-30° 57.7'	7.0	15:47	20:12	00:37
NGC6818	Little Gem	P Neb	Sgr	19h 43m 58s	-14° 09.1'	10.0	14:53	20:16	01:38
NGC6826	Blinking Planetary	P Neb	Cyg	19h 44m 48s	+50° 31.0'	8.8	10:18	20:17	06:15
Abell65		P Neb	Sgr	19h 46m 34s	-23° 08.2'	13.1	15:24	20:18	01:12
NGC6838		Globular	Sge	19h 53m 46s	+18° 46.6'	8.3	13:28	20:26	03:23
NGC6842		P Neb	Vul	19h 55m 02s	+29° 17.3'	14.0	12:52	20:27	04:02
HR7619	Psi Cyg, 24 Cyg	Mult	Cyg	19h 55m 38s	+52° 26.3'	4.9	09:58	20:28	06:57
NGC6853	Dumbbell Nebula	P Neb	Vul	19h 59m 36s	+22° 43.2'	8.1	13:21	20:31	03:42
IC4954		Neb	Vul	20h 04m 45s	+29° 15.1'		13:02	20:37	04:12
M75	NGC6864	Globular	Sgr	20h 06m 05s	-21° 55.3'	9.5	15:40	20:38	01:36

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
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