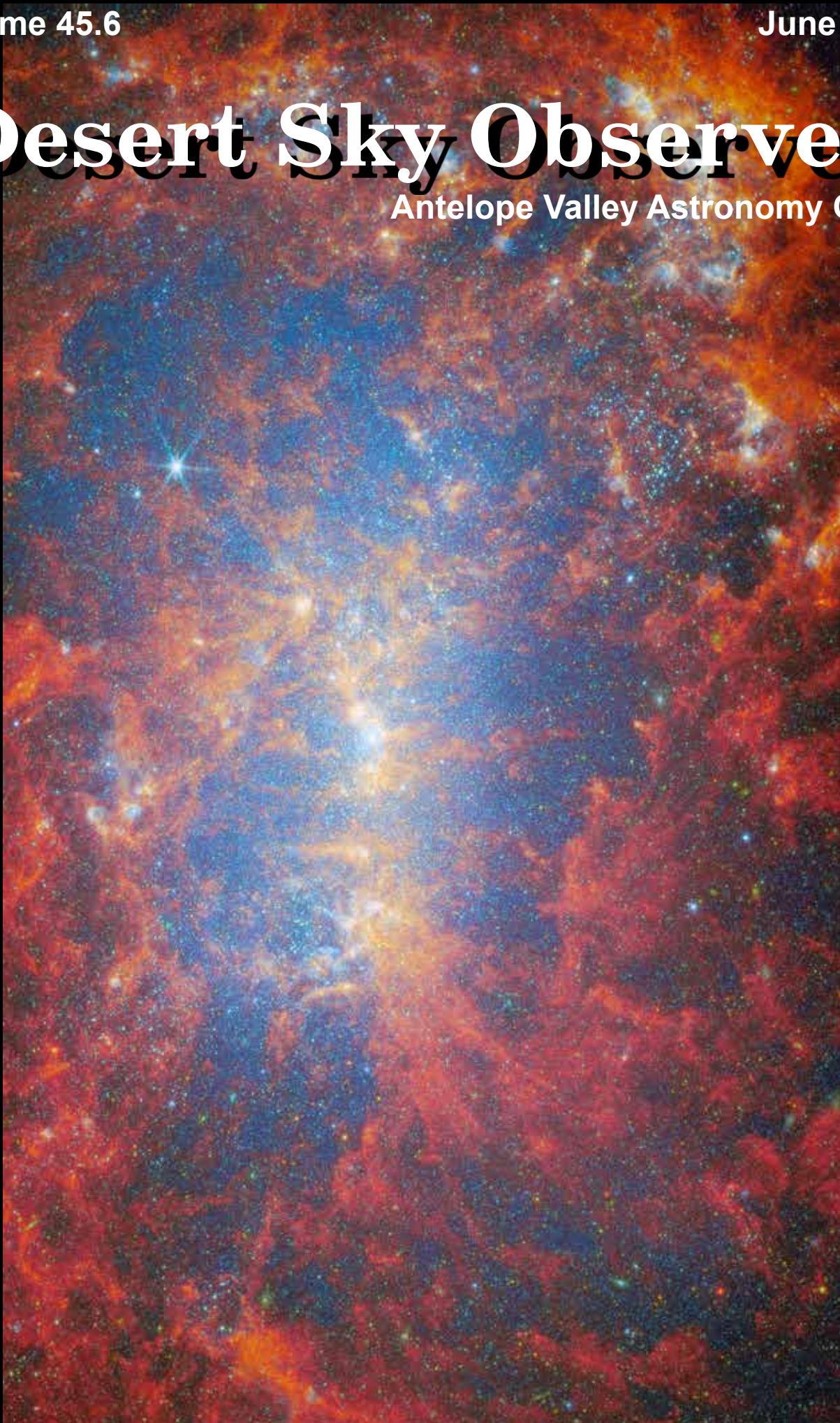


Volume 45.6

June 2025

Desert Sky Observer

Antelope Valley Astronomy Club



Desert Sky Observer

www.avastronomyclub.org

June 2025

Upcoming Events

June 7: Moonwalk @ PDW 8:30 pm

June 13: Club Meeting

June 28: DSSP @ Chuchupate ?

Every clear night: Personal Star Party

July 11: Club Meeting

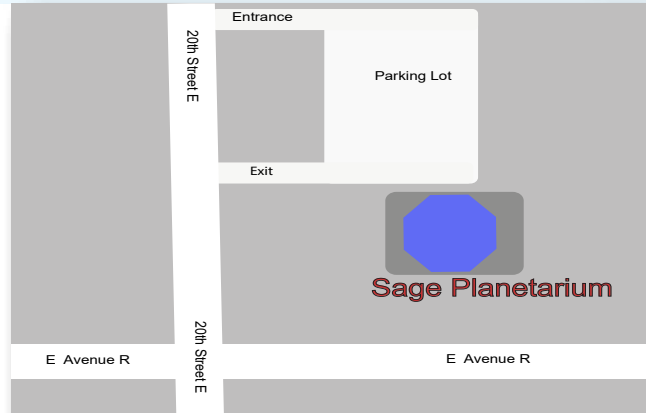
July 12: Moonwalk @ PDW 8:30 pm

July 26: DSSP @ Mt Pinos

August 2: Lunar Club @ TBD



AVAC Calendar



Board Members

President: Phil Wriedt (661) 917-4874

president@avastronomyclub.org

Vice-President: Matt Leone (661) 713-1894

vice-president@avastronomyclub.org

Secretary: Rose Moore (661) 972-1953

secretary@avastronomyclub.org

Treasurer: Rod Girard (661) 803-7838

treasurer@avastronomyclub.org

Director of Community Development:

Christian Amaya (661) 972-0091

community@avastronomyclub.org

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



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

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.



www.avastronomyclub.org

President's Message

By Phil Wriedt

Hi there,

Our next Moonwalk is on June 7th. Sunset is at 8:04 pm and astronomical dusk is late at 9:49 pm. Jupiter Mercury will be just west of Sun invisible in the glare. The only planet visible will be Mars. The 91% Moon will rise at 5:08 pm. Get there early so you can setup 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. Don't forget warm clothes, jackets, gloves, etc., well made not in June, but be prepared. Hopefully it will be a cloudless night.

On the 24/25th of May we had our third try at a first Dark Sky Star Party of the year at Chuchupate. I was told a good time was had by all; I wish I could have been there. Our next attempt at a Dark Sky Star Party will be on the 28th of June at Chuchupate; the 3¼ day old Moon will set at 11:03pm. Like the Moonwalks, the weather will rule what happens, with some luck, it will cloudless, windless and without smoke. Still don't forget warm clothes, food, water and toilet paper.

At our next Club Meeting on the 13th, we have a speaker! Tim Thompson from the Mt Wilson Observatory will be talking about the Sun. I've been hearing rumors that we have a speaker for a meeting in the future. After watching what is going on in Washington and the state of NASA's budget, one could conclude that it will be even more difficult to get a speaker from JPL or NASA in general. (I think we've managed one in the past year.) If anybody knows or has an idea where we can get a speaker, please contact Rose or Matt.

On August 2nd the Lunar Club will meet again. There will be a 9½ day Moon. It will probably be at Prime Desert Woodland again.

Keep Looking Up, Phil

On The Cover Note: North is 47° right of vertical RA: 12h 28' 10.86" DEC: 44° 5' 44.88" Dist: 12 Mly (Canes Venatici)

Featured in this new image from the NASA/ESA/CSA James Webb Space Telescope is the dwarf galaxy NGC 4449. This galaxy, also known as Caldwell 21, resides roughly 12.5 million light-years away in the constellation Canes Venatici. It is part of the M94 galaxy group, which lies close to the Local Group that hosts our Milky Way.

NGC 4449 has been forming stars for several billion years, but it is currently experiencing a period of star formation at a much higher rate than in the past. Such unusually explosive and intense star formation activity is called a starburst and for that reason NGC 4449 is known as a starburst galaxy. In fact, at the current rate of star formation, the gas supply that feeds the production of stars would only last for another billion years or so. Starbursts usually occur in the central regions of galaxies, but NGC 4449 displays more widespread star formation activity, and the very youngest stars are observed both in the nucleus and in streams surrounding the galaxy. It's likely that the current widespread starburst was triggered by interaction or merging with a smaller companion; indeed, astronomers think NGC 4449's star formation has been influenced by interactions with several of its neighbours.

NGC 4449 resembles primordial star-forming galaxies which grew by merging with and accreting smaller stellar systems. Since NGC 4449 is close enough to be observed in great detail, it is the ideal laboratory for astronomers to study what may have occurred during galaxy formation and evolution in the early Universe.

[continued on page 4](#)

From the Secretary

By Rose Moore

Members:

A Prime Desert Moon Walk is our start for the month of June. PDW Moon Walk is on Saturday June 7th at 8:30pm; weather permitting, set up time is 30-45 minutes prior to event. We need members with telescopes to help out at this event, or come out and take the astronomy walk and talk with Jeremy! For new members this event is at the Prime Desert Woodland Preserve, 43201 35th St W, Lancaster, CA 93536.

We have a speaker for our meeting on Friday June 13th, at 7pm. Our speaker will be Tim Thompson from Mt. Wilson Observatory, and he will be speaking on the Sun; it is free and open to the public. Come on out and enjoy the presentation!

Our dark sky star party this month will be on Saturday June 28th, at Chuchupate. Arrival time is anytime on the weekend; weather permitting. More information coming in an email that week!

For July we will have a virtual speaker via Zoom: Naveen Vetcha who works at the NASA Marshall Space Flight Center in Huntsville, AL. He will be speaking on the James Webb telescope. He worked as a test analyst on the sunshield of the James Webb Telescope, as well as a liquid propulsion analyst on the RS-25 engines for NASA's SLS. Naveen is also an amateur astronomer and educator at the Huntsville Von Braun Astronomical Society.

Also in July is another Prime Desert Moon Walk and a dark sky star party at Mt. Pinos.

See you there!

Rose

On The Cover ... continued

This new image makes use of data from two of Webb's instruments: [MIRI](#) (Mid-InfraRed Instrument) and [NIRCam](#) (Near-InfraRed Camera). Observations in the [infrared](#) reveal the galaxy's creeping tendrils of gas, dust and stars. The bright blue spots reveal countless individual stars, while the bright yellow regions that weave throughout the galaxy indicate concentrations of active stellar nurseries, where new stars are forming. The orange-red areas indicate the distribution of a type of carbon-based compounds known as polycyclic aromatic hydrocarbons (or PAHs) — the MIRI F770W filter is particularly suited to imaging these important molecules. The bright red spots correspond to regions rich in hydrogen that have been ionised by the radiation from the newly formed stars. The diffuse gradient of blue light around the central region shows the distribution of older stars. The compact light-blue regions within the red ionised gas, mostly concentrated in the galaxy's outer region, show the distribution of young star clusters.

NGC 4449 was observed by Webb as part of a series of observations collectively titled Feedback in Emerging extrAgalactic Star clusTers, or FEAST (PI: A. Adamo). Two other targets of the FEAST programme, [M51](#), and [M83](#), were the subjects of previous ESA/ Webb Picture of the Month images in 2023.

[continued on page 5](#)

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) or Rose (rmorion1@bak.rr.com)

Vice President's Report

By Matt Leone

Hello Everyone,

Looking back, hopefully we had a good Lunar event on May 31. I had a great night observing at Lockwood Valley (Chuchupate) on May 25, I invited 10 friends to join me. Chris, Ann, Jim, Daryl, Rod were there with me as well also sharing their gifts to the public. A rocket shot through the sky, it was great!

In June we are planning on having a dark star party at Mt. Pinos on the 20th. I, personally, am planning to be there from the 18th to the 21st. I won't be able to go to the Grand Canyon because my Mother-in-law is having surgery.

Our June speaker is Tim Thompson from the Mt Wilson Observatory, and he will be speaking on the Sun. Hope to see all of you at the next meeting. Thank you all who went to the painting class it was great to see all the great paintings. Let me know if you want to do it again.

Pray for dark and clear skies in June and the rest of the year and good health to all of you,

Matthew Leone.

On The Cover. . . Continued

[Image Description: A close view of the central area of a dwarf galaxy. A huge number of stars fill the whole galaxy as tiny glowing points. They are brightest around the galaxy's shining core. Thick clouds of gas and dust billow out across the scene, curling like moving flames. They glow in warm colours following their location: orange around the galaxy's core, and around glowing star clusters in the bottom-left, and dark red elsewhere.]

Links

[NGC 4449 \(NIRCam image\)](#)

[NGC 4449 \(MIRI image\)](#)

[Slider tool: Webb's MIRI and NIRCam images of NGC 4449](#)

[Slider tool: Hubble and Webb's views of NGC 4449](#)

[Video: Pan of NGC 4449 \(NIRCam+MIRI image\)](#)

[Video: Pan of NGC 4449 \(NIRCam image\)](#)

[Video: Pan of NGC 4449 \(MIRI image\)](#)

[Transition video: Webb's views of NGC 4449](#)

[Transition video: Hubble and Webb's views of NGC 4449](#)

Credit: ESA/Webb, NASA & CSA, A. Adamo (Stockholm University) and the FEAST JWST team

Space News

News from around the Net

The Twisted Path To Unconfounding M40

Quick! Where's M40? I had to think about it, too. It's fair to say that this Messier object isn't on most amateurs' radar. Many of us first encountered the object while dutifully completing the Messier catalog. Few have returned. Yet once you know its backstory — along with the interesting deep-sky company it keeps — you may want to go back for a second look. Through a small telescope M40 looks like a wide double star, with components of magnitude 9.6 and 10.1 separated by 53". . . . (continued at <https://skyandtelescope.org/astronomy-news/the-twisted-path-to-unconfounding-m40/>)



A Pulsar Broke A Magnetic Thread In The Milky Way

Mysterious threads dangle in the Milky Way center, and a pulsar has punched through one of them — providing fresh perspective on the threads' origins. Four decades ago, radio observations turned up mysterious magnetic threads in the center of the Milky Way, chaotic stitches that wend their way back and forth across the galactic plane. Astronomers have since proposed more than a few ideas to explain the filaments' origins, but consensus has remained out of reach. . . . (continued at <https://skyandtelescope.org/astronomy-news/pulsar-punched-through-a-mysterious-magnetic-thread/>)



Jupiter Used To Be Twice As Big As It Is Now — It Could Have Held 2,000 Earths

Long before it became the giant planet we see today, Jupiter was even bigger and had a much stronger magnetic field, according to a new study that looked back in time to reveal what the world was like in its early years. The new calculations, described in a paper published Tuesday (May 20) in the journal Nature Astronomy, suggest that just 3.8 million years after the solar system's first solid objects formed, Jupiter was twice its current size and had a magnetic field at least 50 times stronger than what we see today. . . . (continued at <https://www.space.com/astronomy/jupiter/jupiter-used-to-be-twice-as-big-as-it-is-now-it-could-have-held-2-000-earths>)



Caught In The Current Of The Wonderful Whirlpool

Messier 51 (NGC 5194) in Canes Venatici is the archetypal face-on spiral galaxy. Aptly named and very well known as the Whirlpool Galaxy, this magnificent object has few rivals across the entire sky and, if the sheer volume of images received at Astronomy Now headquarters over recent years is any indicator, only mighty Messier 31 in Andromeda is as popular. The Whirlpool was discovered by Charles Messier in 1773 and the most famous observations of it were made by William Parsons, ... when observing through the 72-inch 'Leviathan of Parsonstown' at Birr Castle in Ireland.. . . (continued at <https://astronomynow.com/2025/04/25/caught-in-the-current-of-the-wonderful-whirlpool/>)



An Extreme Cousin For Pluto? Possible Dwarf Planet Discovered At Solar System's Edge

A small team led by Sihao Cheng, Martin A. and Helen Chooljian Member in the Institute for Advanced Study's School of Natural Sciences, has discovered an extraordinary trans-Neptunian object (TNO), named 2017 OF201, at the edge of our solar system. The TNO is potentially large enough to qualify as a dwarf planet, the same category as the much more well-known Pluto. The new object is one of the most distant visible objects in our solar system and, significantly, . . . (continued at <https://phys.org/news/2025-05-extreme-cousin-pluto-dwarf-planet.html>)



The Sun Up-Close: High-Resolution Observations with New VTT Camera Technology

Large and complex sunspot groups characterize the surface of the dynamic Sun during its activity cycle. A new camera system at the Vacuum Tower Telescope (VTT) at the Observatorio del Teide on Tenerife uses image restoration methods to capture small structures in active areas. This has resulted in unique, high-resolution images that reveal the smallest details in active regions of the Sun's surface. Large solar telescopes can observe the smallest details on the surface of the Sun, but only in a small field of view . . . (continued at <https://www.aip.de/en/news/sun-vtt/>)



Space News

News from around the Net

The Event Horizon Telescope's Next Feat? Multi-Color Pictures Of Black Holes

Astronomers with the Event Horizon Telescope have developed a new way to observe the radio sky at multiple frequencies, and it means we will soon be able to capture color images of supermassive black holes. Color is an interesting thing. In physics, we can say the color of light is defined by its frequency or wavelength. The longer the wavelength, or the lower the frequency, the more toward the red end of the spectrum light is. Move toward the blue end, and the wavelengths get shorter and the frequencies higher. . . . (continued at <https://www.universetoday.com/articles/the-event-horizon-telescopes-next-feat-multi-color-pictures-of-black-holes>)



Astronomers Conduct A Preliminary Search For Exoplanets Around Alpha Centauri

The field of exoplanet studies has grown by leaps and bounds in the past twenty years. To date, over 5,900 planets have been confirmed in more than 4,400 planetary systems. Astronomers have even confirmed the presence of a multi-planet system around Proxima Centauri, the closest star outside the Solar System. And yet, astronomers have not confirmed the presence of any exoplanets around Alpha Centauri, (continued at <https://www.universetoday.com/articles/astromers-conduct-a-preliminary-search-for-exoplanets-around-alpha-centauri>)



The Extremely Large Telescope: Our Biggest Eye On The Sky

It's a weird sight. On a 3,046-meter-high (9,993 feet) mountaintop in the desolate Atacama Desert sits what looks like a shiny steel marble, large enough to be visible from tens of kilometers away. I've seen it many times before, but always in artist's impressions and computer renderings. This time, it's for real. I'm approaching the giant spherical enclosure of the largest optical telescope in the history of mankind. When Dutch spectacle maker Hans Lippershey invented the telescope in the early 17th century, he realized that bigger optics would yield better results. . . . (continued at https://skyandtelescope.org/astronomy-news/255507537131/#google_vignette)



Are Proposed Science Cuts A Call-To-Arms? Or Armageddon?

Deep cuts to NASA, the National Science Foundation, and other science-funding institutions are causing grave concerns in the community. Last week saw the release of President Trump's Fiscal Year 2026 budget blueprint. But it is being greeted by the space exploration community as more of a budgetary bombshell, one that proposes a 24.3% reduction to NASA's top-line funding and slashing the space agency's science budget by 47%. . . . (continued at <https://skyandtelescope.org/astronomy-news/are-proposed-science-cuts-a-call-to-arms-or-armageddon/>)



JWST Sees A Unique Mini-Neptune — The First To Match Predictions

The sub-Neptune TOI-421b is made of much the same stuff as its star — matching predictions, but bucking the trend among other similarly sized planets. The commonest size of exoplanet is one that doesn't exist in our own solar system, and they have maddening variety. Figuring out how they formed is key to understanding how planets of any kind formed, . . . That makes the James Webb Space Telescope time a hot commodity among exoplanet astronomers. . . . (continued at <https://skyandtelescope.org/astronomy-news/jwst-sees-a-unique-mini-neptune-the-first-to-match-predictions/>)



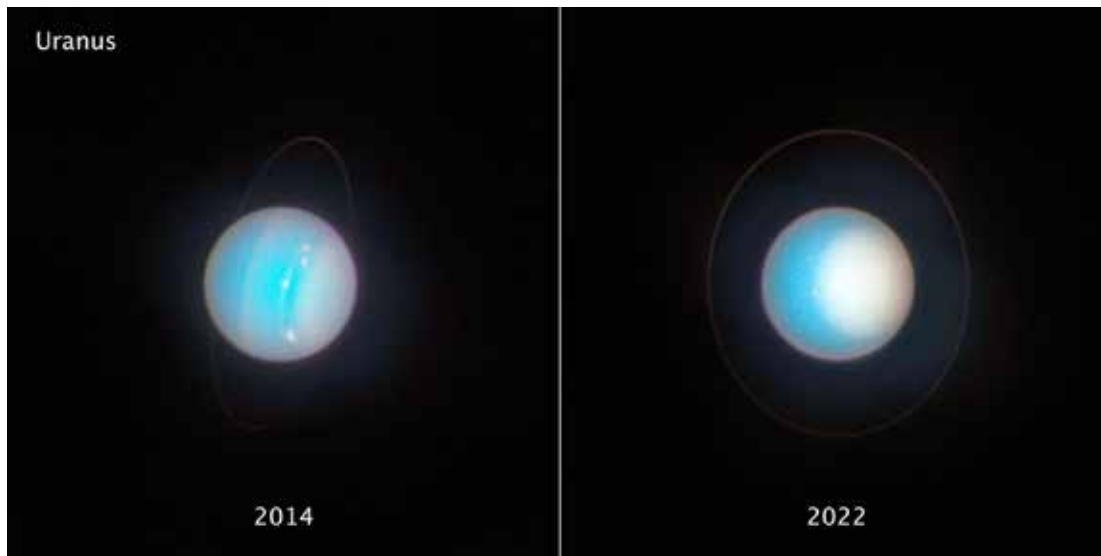
Deep-Sky Dreams: The Cat's Eye Nebula

One of the extreme northern sky's most entertaining deep-sky objects, the Cat's Eye Nebula in Draco (NGC 6543), is a planetary nebula with a high surface brightness. Discovered by William Herschel in 1786, it was the first planetary whose spectrum was observed, in 1864, by William Huggins. He therefore demonstrated that planetary nebulae are gaseous. Its overall magnitude is 8.1; its small, bright disk measures 20" across; and the outer halo extends to 5.8'. At its distance of 3,300 light-years, this corresponds to a diameter of about 0.4 light-year. . . (continued at <https://www.astronomy.com/observing/deep-sky-dreams-the-cats-eye-nebula/>)



June's Night Sky Notes: Seasons of the Solar System

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

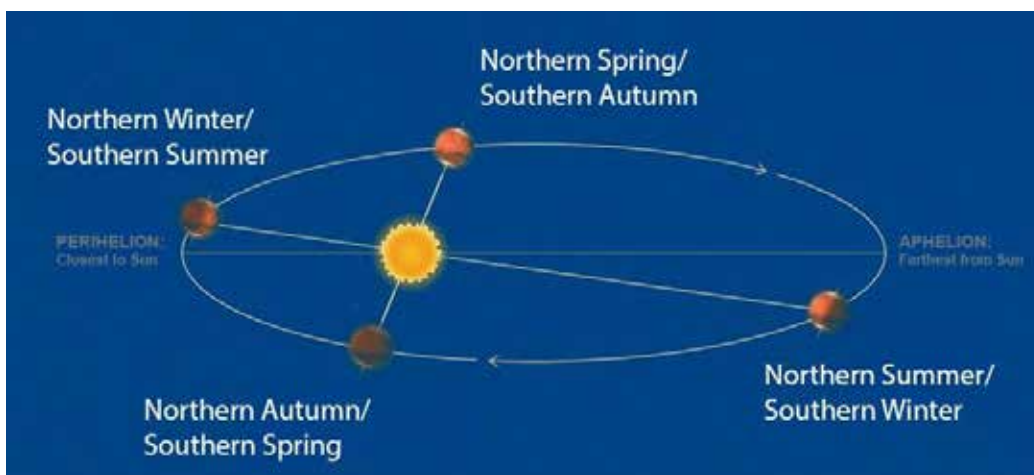


Uranus rolls on its side with an 84-year orbit and a tilt just 8° off its orbital plane. Its odd tilt may be from a lost moon or giant impacts. Each pole gets 42 years of sunlight or darkness. Voyager 2 saw the south pole lit; now Hubble sees the north pole facing the Sun. Credit: NASA, ESA, STScI, Amy Simon (NASA-GSFC), Michael Wong (UC Berkeley); Image Processing: Joseph DePasquale (STScI)

Here on Earth, we undergo a changing of seasons every three months. But what about the rest of the Solar System? What does a sunny day on Mars look like? How long would a winter on Neptune be? Let's take a tour of some other planets and ask ourselves what seasons might look like there.

Martian Autumn

Although Mars and Earth have nearly identical axial tilts, a year on Mars lasts 687 Earth days (nearly 2 Earth years) due to its average distance of 142 million miles from the Sun, making it late autumn on the red planet. This distance and a thin atmosphere make it less than perfect sweater weather. A recent weather report from Gale Crater boasted a high of -18 degrees Fahrenheit for [the week of May 20, 2025](#).



An artist's rendition of Mars' orbit around the Sun, and its seasons. Credit: NASA/JPL-Caltech

Seven Years of Summer

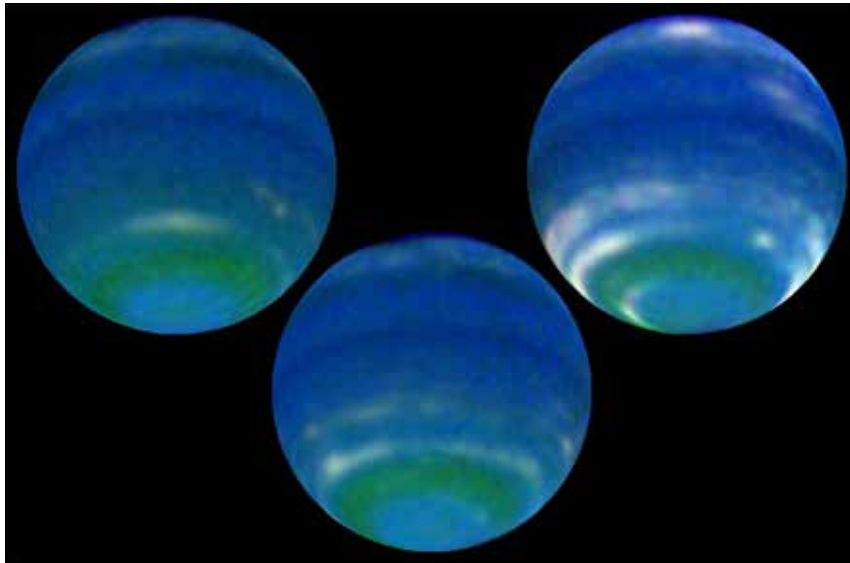
Saturn has a 27-degree tilt, very similar to the 25-degree tilt of Mars and the 23-degree tilt of Earth. But that is where the similarities end. With a 29-year orbit, a single season on the ringed planet lasts seven years. While we can't experience a

[Saturnian season](#), we can observe a [ring plane crossing](#) here on Earth instead. The most recent plane crossing took place in March 2025, allowing us to see Saturn's rings 'disappear' from view.

A Lifetime of Spring

Even further away from the Sun, each season on Neptune lasts over 40 years. Although changes are slower and less dramatic than on Earth, scientists have observed seasonal activity in Neptune's atmosphere. [These images](#) were taken between 1996 and 2002 with the Hubble Space Telescope, with brightness in the southern hemisphere indicating seasonal change.

As we welcome summer here on Earth, you can build a [Suntrack](#) model that helps demonstrate the path the Sun takes through the sky during the seasons. You can find even more fun activities and resources like this model on NASA's [Wavelength and Energy](#) activity.



NASA Hubble Space Telescope observations in August 2002 show that Neptune's brightness has increased significantly

ADDITIONAL LINKS:

Gale Crater Weather Report: <https://mars.nasa.gov/layout/embed/image/mslweather/>

Saturn Seasons: <https://science.nasa.gov/missions/hubble/hubble-captures-the-start-of-a-new-spoke-season-at-saturn/>

Ring Plane Crossing: <https://science.nasa.gov/missions/hubble/hubble-captures-the-start-of-a-new-spoke-season-at-saturn/>

Neptunian Springtime: <https://science.nasa.gov/missions/hubble/brighter-neptune-suggests-a-planetary-change-of-seasons/>

Suntrack Activity: <https://solar-center.stanford.edu/AO/Sun-Track-Model.pdf>

Wavelength and Energy: <https://www.nasa.gov/stem-content/wavelength-and-energy/>

IMAGE CREDITS:

Uranus: <https://science.nasa.gov/asset/hubble/uranus-nov-2014-and-nov-2022/>

Martian Seasons: <https://science.nasa.gov/resource/seasons-in-the-martian-year-as-the-red-planet-orbits-the-sun/>

Neptune: <https://science.nasa.gov/asset/hubble/springtime-on-neptune-increased-brightness-shows-seasonal-change/>

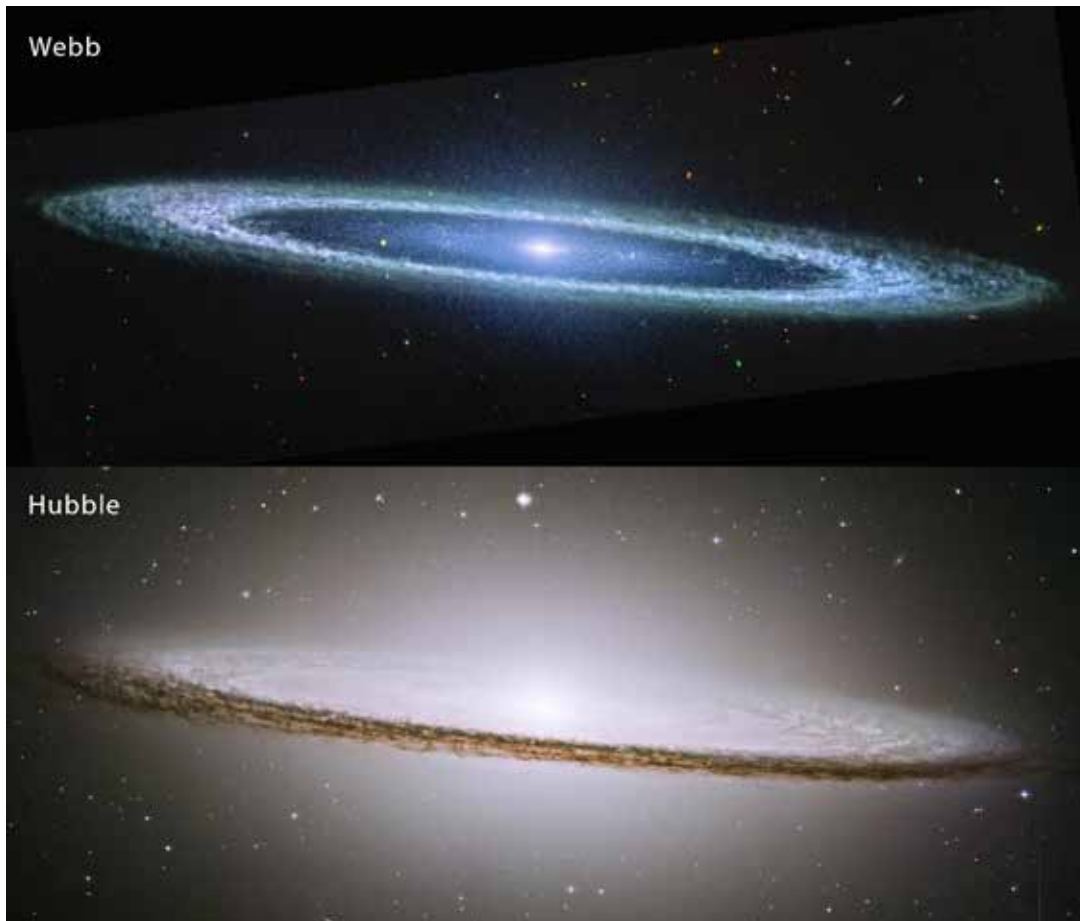
Additional Skywatching Resources

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 to find local clubs, events, and more!

Sombrero Galaxy dazzles in new Webb image

[weic2427 — Photo Release](#) 25 November 2024



A new mid-infrared image from the NASA/ESA/CSA James Webb Space Telescope features the Sombrero galaxy, also known as Messier 104 (M104). The signature, glowing core seen in visible-light images does not shine, and instead a smooth inner disk is revealed. The sharp resolution of Webb's MIRI (Mid-Infrared Instrument) also brings into focus details of the galaxy's outer ring, providing insights into how the dust, an essential building block for astronomical objects in the Universe, is distributed. The galaxy's outer ring shows intricate clumps in the infrared for the first time.

Researchers say the clumpy nature of the dust, where MIRI detects carbon-containing molecules called polycyclic aromatic hydrocarbons, can indicate the presence of young star-forming regions. However, unlike some galaxies studied with Webb, including [Messier 82](#), where 10 times as many stars are born as in the Milky Way galaxy, the Sombrero galaxy is not a particular hotbed of star formation. The rings of the Sombrero galaxy produce less than one solar mass of stars per year, in comparison to the Milky Way's roughly two solar masses a year.

The supermassive black hole at the centre of the Sombrero galaxy, also known as an active galactic nucleus (AGN), is rather docile, even at a hefty 9-billion-solar masses. It's classified as a low luminosity AGN, slowly snacking on infalling material from the galaxy, while sending off a bright, relatively small, jet.

Also within the Sombrero galaxy dwell some 2000 globular clusters, a collection of hundreds of thousands of old stars held together by gravity. This type of system serves as a pseudo laboratory for astronomers to study stars – thousands of stars within one system with the same age, but varying masses and other properties is an intriguing opportunity for comparison studies.

In the MIRI image, galaxies of varying shapes and colours litter the background of space. The different colours of these background galaxies can tell astronomers about their properties, including how far away they are.

continued on next page

The Sombrero galaxy is around 30 million light-years from Earth in the constellation Virgo.

Stunning images like this, and an array of discoveries in the study of exoplanets, galaxies through time, star formation, and our own Solar System, are still just the beginning. Recently, scientists from all over the world converged—virtually—to apply for observation time with Webb during its fourth year of science operations, which begins in July 2025.

General Observer time with Webb is more competitive than ever. A record-breaking 2377 proposals were submitted by the 15 October 2024 deadline, requesting about 78,000 hours of observation time. This is an oversubscription rate, the ratio defining the observation hours requested versus the actual time available in one year of Webb's operations, of around 9 to 1.

The proposals cover a wide array of science topics, with distant galaxies being among the most requested observation time, followed by exoplanet atmospheres, stars and stellar population, then exoplanet systems.

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

Links

- [ESA Webb Seeing Farther Interactive Brochure](#)
- [Release on STScI website](#)

Contacts

Bethany Downer
ESA/Webb Chief Science Communications Officer
Email: Bethany.Downer@esawebb.org

Ninja Menning
ESA Newsroom and Media Relations Office
Email: media@esa.int

Holmes and Dr Watson were going camping. They pitched their tent under the stars and went to sleep. Sometime in the middle of the night Holmes woke Watson up and said: Watson, look up at the stars, and tell me what you see?

Watson replied: I see millions and millions of stars. Holmes said: and what do you deduce from that?

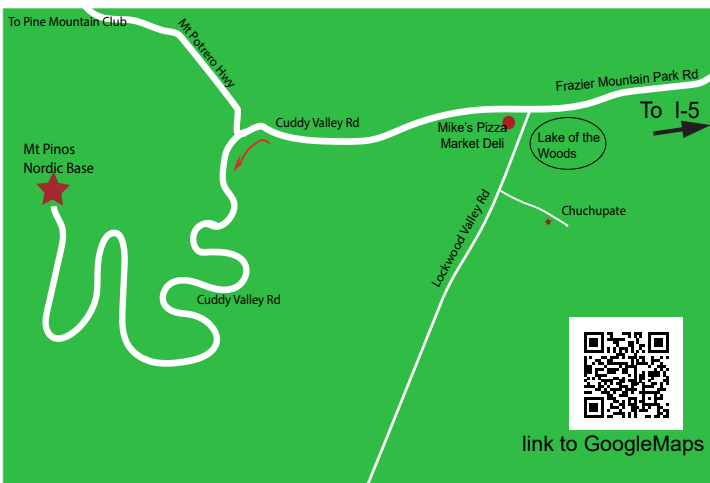
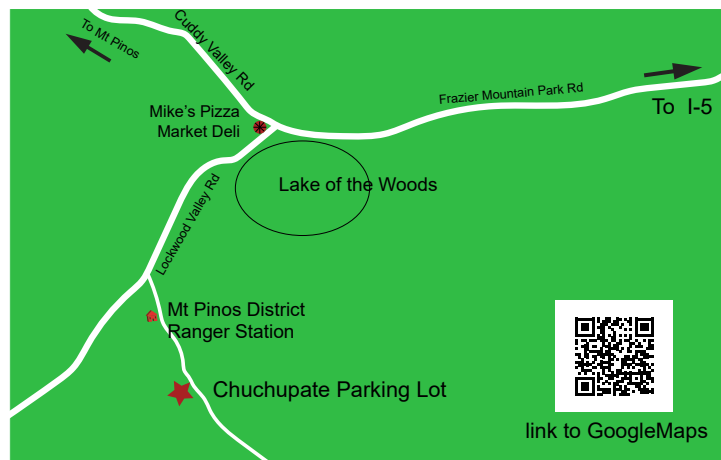
Watson replied: Well, if there are millions of stars, and if even a few of those have planets, quite likely there are some planets like earth out there. And if there are a few planets like earth out there, there might also be life.

And Holmes said: Watson, you idiot, it means that somebody stole our tent!!

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.

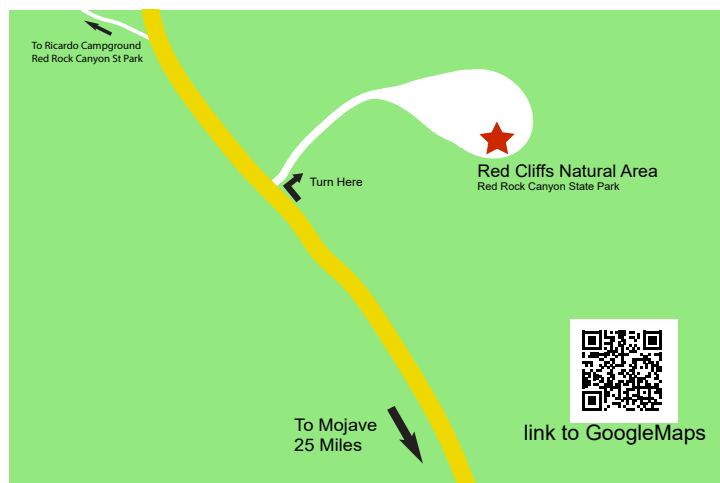
To get there: From I-5, get off at Frazier Mountain Park Rd and drive west about 7 miles to Mike’s Pizza/Market Deli at Lockwood Valley Rd. Keep on the main roadway (don’t turn left to go to Chuchupate). Continue past Mike’s Pizza on Cuddy Valley Rd (the road’s new name) about 5 miles. Continue straight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

Note: The entire drive from I-5 is uphill.

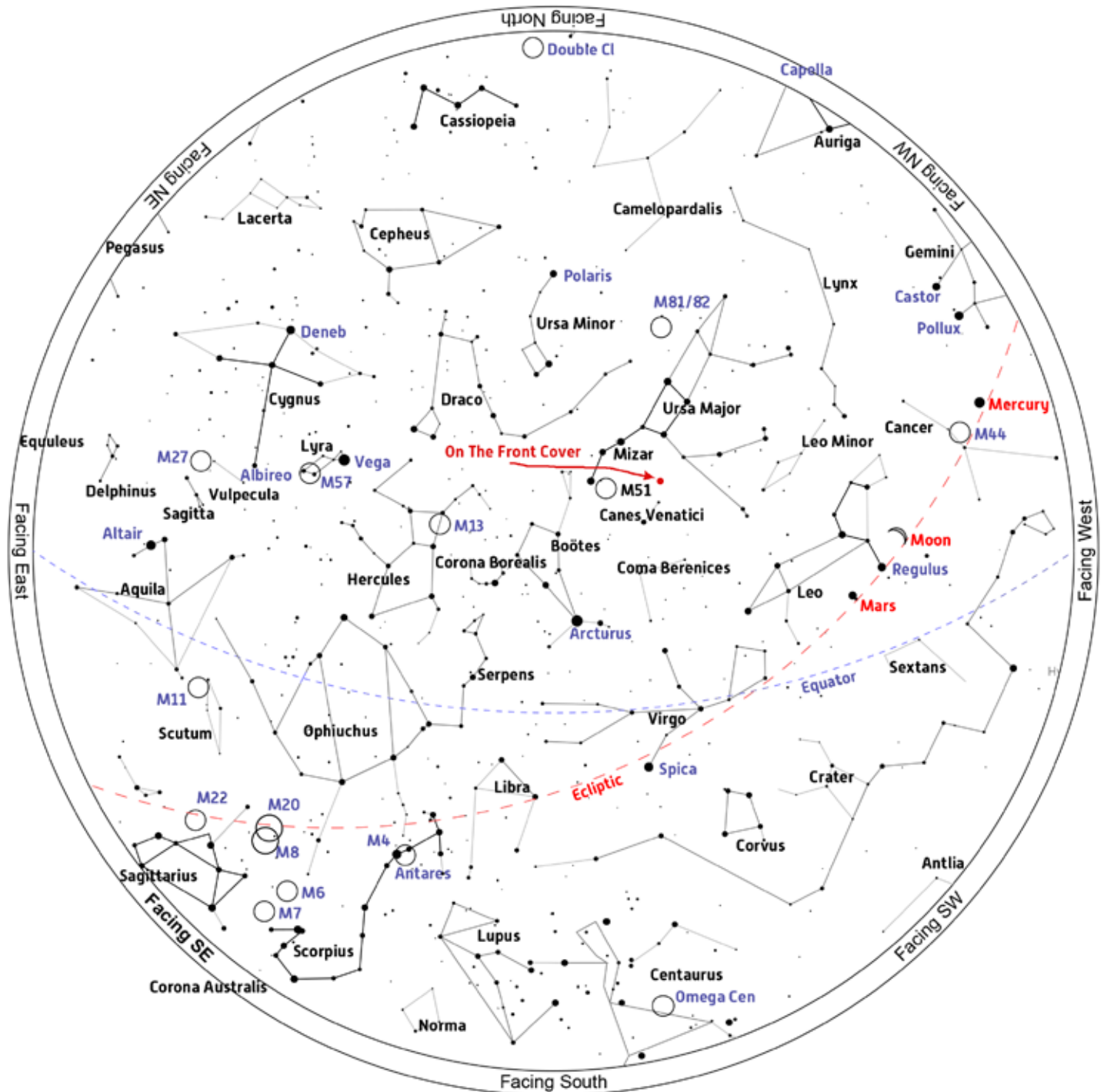
[RV7F+FF Frazier Park, California](#) (link to GoogleMaps)

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 June 28, 21:00 (UTC -07:00)

Powered by: Heavens-Above.com

Solar System Summary

The **Sun** starts the month in central Taurus ending the month in central Gemini.

The Planets

Mercury starts each morning moving toward the Sun and its appointment with its superior conjunction on the 29th .

Venus rises in the early morning moving in normal motion from southern Pisces, slowly dimming while cruising through southern Aries.

Mars starts the month in Leo closing in on Regulus on the 16th and by the end of the month makes it only half the way across Leo.

Jupiter continues it's normal motion heading east from Taurus into central Gemini. On the 24th the Sun passes in front of Jupiter stuck in the morning twilight for the next few weeks.

Saturn rising early in the morning still moving normally in Pisces at mag 0.9. Within a degree south of Neptune for most of the month.

Uranus continues moving normally at mag 5.8 in eastern Taurus, about $4\frac{1}{3}^\circ$ south of the Pleiades.

Neptune moving in normal motion in southern Pisces at 7.9, and by the 29th begins it's retrograde motion and is less than 1° north of Saturn.

Dwarf Planets

134340 Pluto spends the month in retrograde, still in western Capricorn, at mag 14.4.

1 Ceres spends the month moving east in Cetes at mag 9.0, a few degrees south of Saturn

2 Pallas begins retrograde motion in eastern Delphinus at magnitude 10.4.

3 Juno continues its retrograde motion in Serpens Caput at mag10.7.

4 Vesta finishes its retrograde motion and resuming normal motion in the last days of the month in eastern Virgo at mag 6.8.

Moon Phases



First Qtr June 2 Full June 11 Third Qtr June 18 New June 25

Sun and Moon Rise and Set*

Date	Moonrise	Moonset	Sunrise	Sunset
6/1/2025	11:21	00:34	05:40	20:00
6/5/2025	15:14	02:15	05:39	20:03
6/10/2025	20:07	04:46	05:39	20:05
6/15/2025	23:46	09:37	05:39	20:07
6/20/2025	01:39	15:11	05:40	20:08
6/25/2025	05:35	21:03	05:41	20:09
6/30/2025	11:10	23:54	05:43	20:09

Planet Data*

June 1

	Rise	Transit	Set	Mag	Phase%
Mercury	05:50	13:04	20:20	-1.93	98.7
Venus	03:25	09:49	16:14	-4.30	50.2
Mars	11:00	17:48	00:34	1.29	90.9
Jupiter	06:51	14:02	21:13	-1.92	99.9
Saturn	02:20	08:17	14:14	1.07	99.8

June 15

	Rise	Transit	Set	Mag	Phase%
Mercury	06:54	14:13	21:32	-0.54	73.8
Venus	03:11	09:48	16:26	-4.20	57.2
Mars	10:43	17:22	00:00	1.40	91.6
Jupiter	06:10	13:21	20:33	-1.90	99.9
Saturn	01:27	07:25	13:22	1.02	99.7

June 30

	Rise	Transit	Set	Mag	Phase%
Mercury	07:45	14:46	21:46	0.38	46.1
Venus	03:02	09:53	16:44	-4.12	63.8
Mars	10:26	16:55	23:24	1.42	92.5
Jupiter	05:26	12:37	19:48	-1.90	99.9
Saturn	00:25	06:27	12:26	0.96	99.7

*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 June 28, 2025. The list is sorted by the transit time of the object.

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M48	NGC2548	Open	Hya	08h 13m 43s	-05° 45.0'	5.5	08:58	14:44	20:31
M44	Beehive Cluster	Open	Cnc	08h 40m 24s	+19° 40.0'	4.0	08:10	15:11	22:12
M67	King Cobra	Open	Cnc	08h 51m 18s	+11° 48.0'	7.5	08:46	15:22	21:58
M81	Bode's Galaxy	Galaxy	UMa	09h 55m 33s	+69° 03.9'	7.8	Circ	16:26	Circ
M82	Cigar Galaxy	Galaxy	UMa	09h 55m 53s	+69° 40.8'	9.2	Circ	16:27	Circ
M95	NGC3351	Galaxy	Leo	10h 43m 58s	+11° 42.2'	10.6	10:39	17:15	23:51
M96	NGC3368	Galaxy	Leo	10h 46m 46s	+11° 49.2'	10.1	10:41	17:17	23:54
M105	NGC3379	Galaxy	Leo	10h 47m 50s	+12° 34.9'	10.5	10:40	17:18	23:57
M108	NGC3556	Galaxy	UMa	11h 11m 31s	+55° 40.4'	10.6	Circ	17:42	Circ
M97	Owl Nebula	P Neb	UMa	11h 14m 48s	+55° 01.1'	12.0	Circ	17:45	Circ
M65	Leo Triplet	Galaxy	Leo	11h 18m 56s	+13° 05.5'	10.1	11:10	17:50	00:30
M66	Leo Triplet	Galaxy	Leo	11h 20m 15s	+12° 59.4'	9.7	11:11	17:51	00:31
M109	NGC3992	Galaxy	UMa	11h 57m 36s	+53° 22.4'	10.6	07:37	18:28	05:19
M98	NGC4192	Galaxy	Com	12h 13m 48s	+14° 54.0'	10.9	11:59	18:44	01:30
M99	Coma Pinwheel Galaxy	Galaxy	Com	12h 18m 50s	+14° 25.0'	10.4	12:05	18:49	01:34
M106	NGC4258	Galaxy	CVn	12h 18m 58s	+47° 18.2'	9.1	09:28	18:50	04:11
M61	Swelling Spiral	Galaxy	Vir	12h 21m 55s	+04° 28.3'	10.1	12:37	18:53	01:08
M40	Winnecke 4	Dbl+Asterism	UMa	12h 22m 12s	+58° 05.0'	8.7	Circ	18:53	Circ
M100	Mirror of M99	Galaxy	Com	12h 22m 55s	+15° 49.3'	10.1	12:05	18:54	01:42
M84	NGC4374	Galaxy	Vir	12h 25m 04s	+12° 53.2'	10.2	12:16	18:56	01:35
M85	NGC4382	Galaxy	Com	12h 25m 24s	+18° 11.4'	10.0	12:00	18:56	01:52
M86	NGC4406	Galaxy	Vir	12h 26m 12s	+12° 56.7'	9.9	12:17	18:57	01:37
M49	NGC4472	Galaxy	Vir	12h 29m 47s	+08° 00.0'	9.3	12:35	19:00	01:26
M87	Smoking Gun	Galaxy	Vir	12h 30m 49s	+12° 23.4'	9.6	12:23	19:01	01:39
M88	NGC4501	Galaxy	Com	12h 31m 59s	+14° 25.2'	10.2	12:19	19:03	01:47
M91	Missing Messier Object	Galaxy	Com	12h 35m 27s	+14° 29.7'	10.9	12:22	19:06	01:50
M89	NGC4552	Galaxy	Vir	12h 35m 40s	+12° 33.3'	10.9	12:28	19:06	01:45
M90	NGC4569	Galaxy	Vir	12h 36m 50s	+13° 09.7'	10.2	12:27	19:07	01:48
M58	NGC4579	Galaxy	Vir	12h 37m 44s	+11° 49.1'	10.4	12:32	19:08	01:45
M68	NGC4590	Globular	Hya	12h 39m 28s	-26° 44.5'	9.0	14:29	19:10	23:51
M104	Sombrero Galaxy	Galaxy	Vir	12h 39m 59s	-11° 37.3'	9.2	13:41	19:11	00:41
M59	NGC4621	Galaxy	Vir	12h 42m 02s	+11° 38.7'	10.7	12:37	19:13	01:48
M60	NGC4649	Galaxy	Vir	12h 43m 40s	+11° 33.1'	9.8	12:39	19:14	01:50
M94	Croc's Eye Galaxy	Galaxy	CVn	12h 50m 53s	+41° 07.1'	8.9	10:47	19:22	03:56
M64	Black Eye Galaxy	Galaxy	Com	12h 56m 44s	+21° 41.0'	9.3	12:20	19:27	02:35
M53	NGC5024	Globular	Com	13h 12m 55s	+18° 10.1'	8.5	12:48	19:44	02:39
M63	Sunflower Galaxy	Galaxy	CVn	13h 15m 49s	+42° 01.7'	9.3	11:06	19:46	04:26

Desert Sky Observer

www.avastronomyclub.org

June 2025

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC5139	Omega Centauri	Globular	Cen	13h 26m 48s	-47° 29.0'	3.6	17:08	19:57	22:46
NGC5169		Galaxy	CVn	13h 28m 10s	+46° 40.3'	14.0	10:43	19:59	05:15
NGC5204		Galaxy	UMa	13h 29m 36s	+58° 25.1'	11.3	Circ	20:00	Circ
M51	Whirlpool Galaxy	Galaxy	CVn	13h 29m 52s	+47° 11.7'	8.9	10:40	20:01	05:21
Arp85	M51B	Galaxy	CVn	13h 29m 58s	+47° 16.0'	9.6	10:39	20:01	05:22
NGC5182		Galaxy	Hya	13h 30m 41s	-28° 09.0'	13.0	15:25	20:01	00:37
NGC5214		Galaxy	CVn	13h 32m 49s	+41° 52.3'	14.0	11:25	20:03	04:42
M83	Southern Pinwheel Galaxy	Galaxy	Hya	13h 37m 00s	-29° 51.8'	8.0	15:38	20:08	00:37
HR5144	1 Boo	Triple	Boo	13h 40m 40s	+19° 57.3'	5.8	13:10	20:11	03:13
NGC5283		Galaxy	Dra	13h 41m 06s	+67° 40.3'	14.0	Circ	20:12	Circ
M3	NGC5272	Globular	CVn	13h 42m 11s	+28° 22.5'	7.0	12:41	20:13	03:44
NGC5286	C84	Globular	Cen	13h 46m 24s	-51° 22.0'	7.6	18:10	20:17	22:24
NGC5292		Galaxy	Cen	13h 47m 40s	-30° 56.4'	14.0	15:53	20:18	00:43
NGC5356		Galaxy	Vir	13h 54m 59s	+05° 20.0'	14.0	14:08	20:26	02:43
NGC5363		Galaxy	Vir	13h 56m 07s	+05° 15.2'	10.2	14:09	20:27	02:44
NGC5447	III-787	Neb	UMa	14h 02m 29s	+54° 16.3'		09:10	20:33	07:56
M101	Pinwheel Galaxy	Galaxy	UMa	14h 03m 13s	+54° 20.9'	8.2	09:07	20:34	08:01
NGC5461	III-788	Neb	UMa	14h 03m 42s	+54° 19.0'		09:09	20:34	08:00
NGC5485		Galaxy	UMa	14h 07m 11s	+55° 00.0'	11.5	Circ	20:38	Circ
NGC5460		Open	Cen	14h 07m 27s	-48° 20.6'	5.6	17:57	20:38	23:19
NGC5500		Galaxy	Boo	14h 10m 15s	+48° 32.7'	14.0	11:06	20:41	06:15
IC991		Galaxy	Vir	14h 17m 48s	-13° 52.3'	13.0	15:25	20:48	02:12
HR5362	HD125383	Dbl	Lup	14h 20m 10s	-43° 03.5'	5.6	17:28	20:51	00:14
IC4406	Retina Nebula	P Neb	Lup	14h 22m 26s	-44° 09.0'	11.0	17:38	20:53	00:09
HR5409	Phi Vir	Triple	Vir	14h 28m 12s	-02° 13.6'	4.8	15:02	20:59	02:55
NGC5669		Galaxy	Boo	14h 32m 44s	+09° 53.4'	12.0	14:33	21:03	03:34
NGC5689		Galaxy	Boo	14h 35m 30s	+48° 44.5'	11.9	11:30	21:06	06:43
M102	Spindle Galaxy (duplicate of M101?)	Galaxy	Dra	15h 06m 30s	+55° 45.7'	10.8	Circ	21:37	Circ
NGC5875		Galaxy	Boo	15h 09m 13s	+52° 31.6'	13.0	11:08	21:40	08:12
NGC5907	Splinter Galaxy	Galaxy	Dra	15h 15m 54s	+56° 19.7'	11.4	Circ	21:47	Circ
NGC5882		P Neb	Lup	15h 16m 50s	-45° 38.9'	11.0	18:43	21:47	00:52
NGC5897		Globular	Lib	15h 17m 24s	-21° 00.6'	8.6	16:47	21:48	02:49
M5	NGC5904	Globular	Ser	15h 18m 33s	+02° 04.9'	7.0	15:41	21:49	03:58
Barnard228	B228	DkNeb	Lup	15h 44m 00s	-34° 30.0'		18:05	22:15	02:24
IC4593	White Eyed Pea	P Neb	Her	16h 11m 44s	+12° 04.3'	11.0	16:05	22:42	05:19
IC4592	Jabbah	Neb	Sco	16h 11m 59s	-19° 27.4'		17:36	22:43	03:49
M80	NGC6093	Globular	Sco	16h 17m 03s	-22° 58.5'	8.5	17:53	22:48	03:42
IC4601		Neb	Sco	16h 20m 18s	-20° 04.9'		17:47	22:51	03:55
Abell38		P Neb	Sco	16h 23m 17s	-31° 44.9'	11.7	18:32	22:54	03:16

Desert Sky Observer

www.avastronomyclub.org

June 2025

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M4	Cat's Eye	Globular	Sco	16h 23m 35s	-26° 31.5'	7.5	18:12	22:54	03:36
IC4603	Rho Ophiuchi Complex [1]	Neb	Oph	16h 25m 24s	-24° 28.0'		18:07	22:56	03:45
IC4604	Rho Ophiuchi Complex [2]	Neb	Oph	16h 25m 33s	-23° 26.5'		18:03	22:56	03:49
NGC6124	C75	Open	Sco	16h 25m 36s	-40° 40.0'	5.8	19:18	22:56	02:34
Abell39		P Neb	Her	16h 27m 33s	+27° 54.5'	12.9	15:28	22:58	06:28
IC4605		Neb	Sco	16h 30m 12s	-25° 06.8'		18:14	23:01	03:48
NGC6153		P Neb	Sco	16h 31m 31s	-40° 15.2'	12.0	19:22	23:02	02:42
NGC6181		Galaxy	Her	16h 32m 21s	+19° 49.5'	11.9	16:02	23:03	06:04
NGC6171		Globular	Oph	16h 32m 32s	-13° 03.1'	8.1	17:37	23:03	04:29
NGC6178		Open	Sco	16h 35m 47s	-45° 38.6'	7.2	20:02	23:06	02:11
NGC6193	C82	Open	Ara	16h 41m 18s	-48° 46.0'	5.2	20:35	23:12	01:49
M13	Great Hercules Cluster	Globular	Her	16h 41m 41s	+36° 27.5'	7.0	15:05	23:12	07:20
NGC6210	Turtle Planetary Nebula	P Neb	Her	16h 44m 30s	+23° 48.0'	9.0	16:01	23:15	06:30
Barnard44a	B44a	DkNeb	Sco	16h 44m 45s	-40° 20.0'		19:36	23:15	02:55
NGC6204		Open	Ara	16h 46m 09s	-47° 01.0'	8.2	20:24	23:17	02:10
M12	Gumball Globular	Globular	Oph	16h 47m 14s	-01° 56.8'	8.0	17:21	23:18	05:15
NGC6231	Table of Scorpius	Open	Sco	16h 54m 00s	-41° 48.0'	2.6	19:54	23:25	02:56
IC4628	Prawn Nebula	Neb	Sco	16h 56m 58s	-40° 27.3'		19:49	23:28	03:07
NGC6254		Globular	Oph	16h 57m 09s	-04° 05.9'	6.6	17:36	23:28	05:19
Barnard47	B47	DkNeb	Oph	16h 59m 42s	-22° 38.0'		18:35	23:30	04:26
M62	Flickering Globular	Globular	Oph	17h 01m 13s	-30° 06.7'	8.0	19:03	23:32	04:00
M19	NGC6273	Globular	Oph	17h 02m 38s	-26° 16.0'	8.5	18:50	23:33	04:16
Barnard51	B51	DkNeb	Oph	17h 04m 44s	-22° 15.0'		18:38	23:35	04:32
IC4637		P Neb	Sco	17h 05m 10s	-40° 53.1'	14.0	19:59	23:36	03:12
Barnard56	B56	DkNeb	Sco	17h 08m 48s	-32° 05.0'		19:19	23:39	04:00
Barnard59	Pipe Nebula	DkNeb	Oph	17h 11m 23s	-27° 29.0'		19:04	23:42	04:21
NGC6302	C69,Bug Nebula	P Neb	Sco	17h 13m 42s	-37° 06.0'	9.6	19:47	23:44	03:42
Barnard251		DkNeb	Oph	17h 13m 48s	-20° 09.0'		18:41	23:44	04:48
Barnard63		DkNeb	Oph	17h 16m 00s	-21° 28.0'		18:47	23:47	04:46
M92	NGC6341	Globular	Her	17h 17m 07s	+43° 08.1'	7.5	15:00	23:48	08:35
M9	NGC6333	Globular	Oph	17h 19m 12s	-18° 31.0'	9.0	18:41	23:50	04:59
NGC6326		P Neb	Ara	17h 20m 46s	-51° 45.2'	12.0	21:50	23:51	01:53
NGC6357	Lobster Nebula	Neb	Sco	17h 24m 43s	-34° 12.1'		19:44	23:55	04:06
IC4651		Open	Ara	17h 24m 52s	-49° 56.5'	6.9	21:31	23:56	02:20
Abell41		P Neb	Ser	17h 29m 04s	-15° 13.3'	13.9	18:40	00:00	05:19
Abell42		P Neb	Oph	17h 31m 31s	-08° 19.1'	14.6	18:23	00:02	05:42
Barnard78	B78	DkNeb	Oph	17h 32m 00s	-25° 35.0'		19:17	00:03	04:48
NGC6388		Globular	Sco	17h 36m 17s	-44° 44.1'	6.9	20:56	00:07	03:18
M14	NGC6402	Globular	Oph	17h 37m 36s	-03° 14.7'	9.5	18:15	00:08	06:02

Desert Sky Observer

www.avastronomyclub.org

June 2025

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M6	Butterfly Cluster	Open	Sco	17h 40m 20s	-32° 15.2'	4.5	19:51	00:11	04:31
NGC6397	C86	Globular	Ara	17h 40m 42s	-53° 40.0'	5.6	22:42	00:11	01:41
NGC6426		Globular	Oph	17h 44m 55s	+03° 10.1'	11.2	18:04	00:16	06:27
Barnard83a	B83a	DkNeb	Sgr	17h 45m 18s	-20° 00.0'		19:12	00:16	05:20
IC4665		Open	Oph	17h 46m 30s	+05° 39.0'	4.2	17:59	00:17	06:36
NGC6445	Crescent Nebula	P Neb	Sgr	17h 49m 15s	-20° 00.6'	13.0	19:16	00:20	05:24
NGC6503		Galaxy	Dra	17h 49m 27s	+70° 08.6'	10.2	Circ	00:20	Circ
NGC6441		Globular	Sco	17h 50m 13s	-37° 03.0'	7.4	20:23	00:21	04:18
Barnard283	B283	DkNeb	Sco	17h 51m 00s	-33° 52.0'		20:09	00:22	04:34
Barnard285	B285	DkNeb	Ser	17h 51m 32s	-12° 52.0'		18:56	00:22	05:49
M7	Scorpion's Tail	Open	Sco	17h 53m 51s	-34° 47.6'	3.5	20:16	00:25	04:33
IC4670		Neb	Sgr	17h 55m 07s	-21° 44.6'		19:27	00:26	05:24
NGC6501		Galaxy	Her	17h 56m 04s	+18° 22.3'	12.3	17:30	00:27	07:23
M23	NGC6494	Open	Sgr	17h 57m 04s	-18° 59.1'	6.0	19:20	00:28	05:35
NGC6543	Cat Eye Nebula	P Neb	Dra	17h 58m 36s	+66° 38.0'	8.1	Circ	00:29	Circ
NGC6496		Globular	Sco	17h 59m 04s	-44° 16.0'	9.2	21:15	00:30	03:44
Barnard291	B291	DkNeb	Sgr	17h 59m 43s	-33° 53.0'		20:18	00:30	04:43
Barnard292	B292	DkNeb	Sgr	18h 00m 34s	-33° 20.0'		20:16	00:31	04:46
Barnard293	B293	DkNeb	Sgr	18h 01m 12s	-35° 20.0'		20:26	00:32	04:38
M20	Trifid Nebula	Open+D Neb	Sgr	18h 02m 42s	-22° 58.2'	5.0	19:39	00:33	05:28
M8	Dragon Nebula	Open+D Neb	Sgr	18h 03m 41s	-24° 22.7'	5.0	19:45	00:34	05:24
Barnard295	B295	DkNeb	Sgr	18h 04m 05s	-31° 09.0'		20:11	00:35	04:59
M21	NGC6531	Open	Sgr	18h 04m 13s	-22° 29.3'	7.0	19:39	00:35	05:31
NGC6530		Open	Sgr	18h 04m 31s	-24° 21.5'	4.6	19:45	00:35	05:25
NGC6528		Globular	Sgr	18h 04m 50s	-30° 03.3'	9.5	20:07	00:35	05:04
IC4684		Neb	Sgr	18h 09m 08s	-23° 26.1'		19:47	00:40	05:33
IC4685		Neb	Sgr	18h 09m 18s	-23° 59.2'		19:49	00:40	05:31
IC1274		Neb	Sgr	18h 09m 51s	-23° 38.8'		19:48	00:41	05:33
IC1275		Neb	Sgr	18h 10m 07s	-23° 45.7'		19:49	00:41	05:33

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
Australis
Tri - Triangulum
Tuc - Tucana
UMa - Ursa Major
UMi - Ursa Minor
Vel - Vela
Vir - Virgo
Vol - Volans
Vul - Vulpecula

Our Sponsors

Cosmos Level Sponsors

 Woodland Hills
Camera & Telescopes **TelescopeS.NET**
5348 Topanga Canyon Blvd., Woodland Hills
888-427-427-8766 www.telescopes.net

Universe Level Sponsors



Galaxy Level Sponsors



Al's Vacuum and Sewing
904 West Lancaster Blvd., Lancaster
(661) 948-1521