

Volume 44.8

August 2024

Desert Sky Observer

Antelope Valley Astronomy Club



Desert Sky Observer

www.avastronomyclub.org

August 2024

Upcoming Events

August 3: DSSP at Mt Pinos
August 9: Club Meeting
August 10: Lunar Club @ Matt's house
August 17: Moonwalk @ Prime Desert Woodland
August 31: DSSP @ Chuchupate

Every clear night: Personal Star Party

September 7: Lunar Club @ Matt's house
September 13: Club Meeting
September 21: Moonwalk @ Prime Desert Woodland
September 28: DSSP @ Chuchupate



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:
John VanEvera 661-754-1819
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



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



www.avastronomyclub.org

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

President's Message

By Phil Wriedt

Hi There!

Our next scheduled event, a Dark Sky Star Party, is planned to be on the Saturday/Sunday the 3RD/4TH of August, at Mt. Pinos. Matt will be there on Friday. The weather seems to be cooperating lately, so there is a good chance there will be good weather. There will be a 1% moon that will set about 7:53 pm. Astronomical twilight ends at 9:27. If you miss this one we will be back at Chuchupate on August 31st/ September 1st, Labor Day weekend.

Our next Club Meeting is on Friday, the 9TH. Matt will be speaking on the life and death of galaxies. I can't wait to see what he picks. I'm sure he will mention the Lunar Club on Saturday at his house in Rosamond. We are still pursuing speakers from JPL or other institutions, but anybody who has worked with a bureaucracy might understand that this can be extremely frustrating. We are still feeling the effects of Covid.

We have a Moonwalk coming on the 17TH! Sunset is at 7:37 pm and the Moon is two days before full, so that will be visible. On page 6 of the *Outlook* the Moonwalks are mentioned by directs readers to lancastermoah.org to find the dates. I couldn't find them, so I called MOAH, and was told "they are all canceled" . . . Are you sure?..."oh the 17th" . . . AHHHHH! (See bureaucracy mentioned above). Moonwalks are our main Public Outreach, so we really need members with telescopes at these events.

For the next few months you might want to look out for: *T Coronae Borealis*. (That's T not T the greek letter Tau, variable stars in any constellation are given letters starting with R, the first letter not used by Bayer, see Wikipedia article [Variable-star Designation](#)) This is a recurrent nova in Corona Borealis. It is a binary variable-star system normally of mag. 10. The last time it went nova was February 9, 1946. It's due again between March and September of this year. It's peak mag. of about 2.5 ± 0.5 . Look for it on the southern border between C. Borealis and Serpens Caput, at 15h 59m, 25°55'. During August it will be a little past zenith.

Keep Looking Up, Phil

On The Cover

Please note: North is 67.4° right of vertical RA: 17h 17' 57.73" DEC: -23° 45' 27.47" (Ophiuchus)

The densely packed globular cluster NGC 6325 glistens in this image from the NASA/ESA Hubble Space Telescope. This concentrated group of stars lies around 26 000 light years from Earth in the constellation Ophiuchus.

Globular clusters like NGC 6325 are tightly bound collections of stars with anywhere from tens of thousands to millions of members. They can be found in all types of galaxies, and act as natural laboratories for astronomers studying star formation. This is because the constituent stars of globular clusters tend to form at roughly the same time and with similar initial composition, meaning that astronomers can use them to fine-tune their theories of how stars evolve.

Astronomers inspected this particular cluster not to understand star formation, but to search for a hidden monster. Though it might look peaceful, astronomers suspect this cluster could contain an intermediate-mass black hole that is subtly affecting the motion of surrounding stars. Previous research found that the distribution of stars in some highly concentrated globular clusters — those with stars packed relatively tightly together — was slightly different from what astronomers expected.

This discrepancy suggested that at least some of these densely packed globular clusters — including perhaps NGC 6325 — could have a black hole lurking at the centre. To explore this hypothesis further, astronomers turned to Hubble's Wide Field Camera 3 to observe a larger sample of densely populated globular clusters, which included this star-studded image of NGC 6325. Additional data from Hubble's Advanced Camera for Surveys were also incorporated into this image.

Credit: ESA/Hubble & NASA, E. Noyola, R. Cohen

From the Secretary

By Rose Moore

Members:

We will be starting off the month of August with a dark sky star party at Mt. Pinos, the date is Saturday August 3rd. You may arrive anytime, even earlier than Saturday if you wish. More info will be coming in an email that week.

We will be having a club meeting on Friday August 9th at 7pm at the SAGE Planetarium. Everyone is welcome, and bring a friend! At this time I don't know if Jeremy confirmed a speaker for the meeting, as he has been away on vacation. If no speaker, than VP Matt will be giving a presentation on galaxies. We'll be sending an email out later as the date approaches.

The Prime Desert Moon Walks resumes this month on Saturday August 17th at 8pm! We will need members with telescopes. As always "Weather permitting." Set up time is approximately 30-60mins prior to the event. This event is free and open to the public, come on out and bring a friend!

There is tentatively another dark sky star party on Saturday August 31st. This is Labor Day weekend. We'll be sending out an email when there is more information.

Coming up in the next few months are: club meetings, including our Annual Business Meeting in October; more Prime Desert Moon Walks; more dark sky star parties; and the star party event at the Tehachapi Airport.

Clear skies, Rose

Vice President's Report

By Matt Leone

Hopefully I will see you at Mt. Pinos this weekend; David and I will be there Thursday night through Sunday night. If you haven't noticed the rings of Saturn are currently edge on, it is very cool to see the rings at this orientation.

There will be a Lunar club at my house, on Saturday, the 10th of August starting at 8PM.

I will be the speaker Friday the 9th at the club meeting and will be speaking on galaxies and what makes them tick. Hopefully we will have a speaker in September from J.P.L.

Sorry I am all over the place just came back from fishing for three days and my back is hurting a lot.

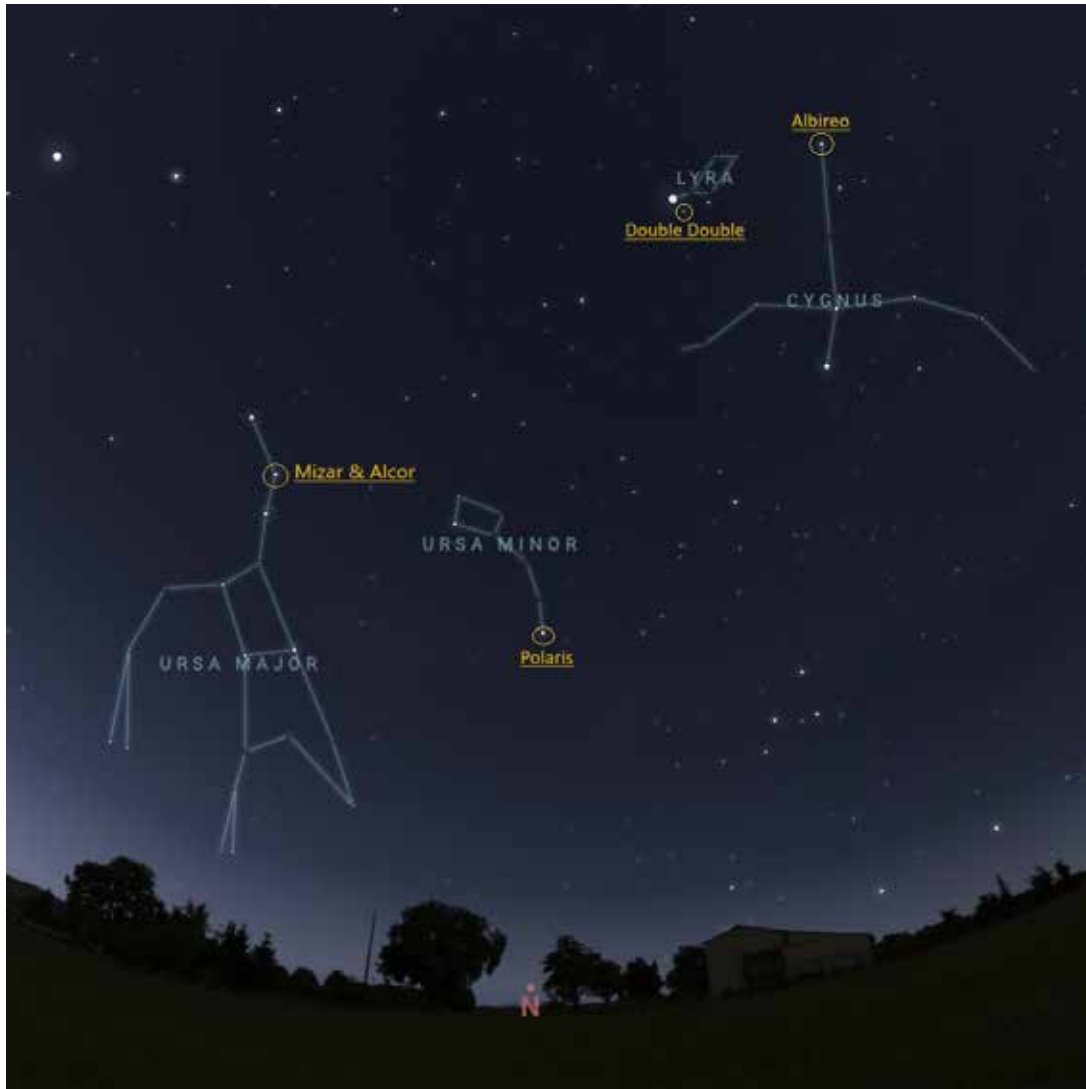
See you this weekend or at the next meeting.

Matthew Leone

August Night Sky Notes: Seeing Double

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

During the summer months, we tend to miss the views of Saturn, Jupiter and other heavenly bodies. But it can be a great time to look for other items, like globular star clusters such as Messier 13, open star clusters such as the Coma Star Cluster (Melotte 111), but also [double stars](#)!



Mid-August night sky constellations with the following multiple star systems highlighted: the Double Double in Lyra, Albireo in Cygnus, Polaris in Ursa Minor, Mizar and Alcor in Ursa Major. Credit: Stellarium Web

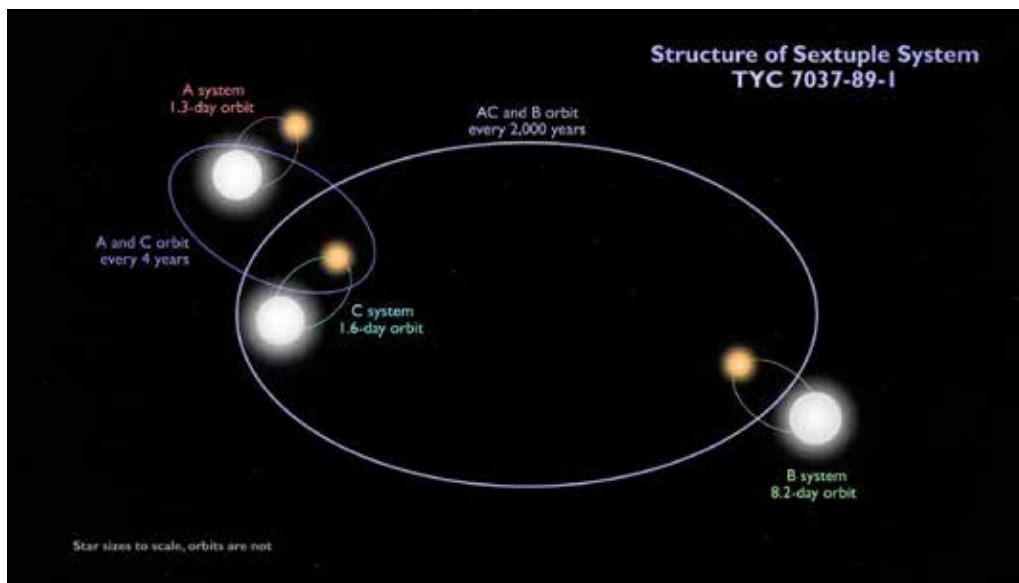
Additional Skywatching Resources

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!

What Are Double Stars?

If you have seen any movies or read any books that refer to having two suns in the sky, that would be a *double star system*. These star systems typically come in two types – binary and optical doubles. Binary stars are two stars that are gravitationally bound and orbit each other, and optical double stars only appear to be close together when viewed from Earth, but in reality, are extremely far apart from another, and are not affected by each other's gravity. With a small telescope, in moderately light polluted skies, summer offers great views of these stellar groupings from the Northern Hemisphere:

- Double Double: also known by its technical name, Epsilon Lyrae, this multiple star system appears as one star with naked eye observing. But with a small telescope, it can be split into 'two' stars. A large telescope reveals Epsilon Lyrae's secret – what looks like a single star is actually a *quadruple* star system!
- Albireo: a gorgeous double star set – one blue, one yellow – in the constellation Cygnus.
- Polaris: while technically a multiple star system, our North Star can easily be separated from one star to two with a modest telescope.
- Mizar and Alcor: located in the handle of the Big Dipper, this pair can be seen with the naked eye.



This schematic shows the configuration of the sextuple star system TYC 7037-89-1. The inner quadruple is composed of two binaries, A and C, which orbit each other every four years or so. An outer binary, B, orbits the quadruple roughly every 2,000 years. All three pairs are eclipsing binaries. The orbits shown are not to scale. Credit: NASA's Goddard Space Flight Center

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!

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)

Space News

News from around the Net

Jupiter's Great Red Spot May Be Less Than 200 Years Old

Jupiter's signature feature — its Great Red Spot — might not be the same dark spot seen on the giant planet more than three centuries ago. From 1665 to 1713, astronomer Giovanni Domenico Cassini and others observed a dark oval — nicknamed the Permanent Spot — on Jupiter at the same latitude where the Great Red Spot now swirls. Researchers today have wondered whether these spots are one and the same. An analysis of sketches and photographs of Jupiter spanning nearly 360 years suggests the spots are distinct, . . . (continued at https://www.sciencenews.org/article/jupiter-great-red-spot-shrinking?utm_medium=email&utm_term=N%2FA&utm_source=D365&utm_content=SN%20Astronomy%202024%2007%2019&utm_campaign=SN%20Space%20Newsletter%202024%2007%2019#msdynmkt_trackingcontext=41f1e319-ea97-412b-90c2-112b1dad1e43)



Review Concludes Proposed NASA Budget Cuts Would End Chandra

A NASA committee concluded there is no way to continue operating the Chandra X-ray Observatory at the reduced funding level proposed by NASA in its 2025 budget proposal. NASA established the Operations Paradigm Change Review (OPCR) committee this spring to look at ways of reducing the costs of operating Chandra and the Hubble Space Telescope as part of broader efforts to deal with a billion-dollar shortfall in agency science funding. The fiscal year 2025 budget proposal included a 40% cut in Chandra's budget, . . . (continued at <https://spacenews.com/review-concludes-proposed-nasa-budget-cuts-would-end-chandra/>)



Mercury Has A Layer Of Diamond 10 Miles Thick, NASA Spacecraft Finds

The solar system's tiniest planet may be hiding a big secret. Using data from NASA's MESSENGER spacecraft, scientists have determined that a 10-mile-thick diamond mantle may lie beneath the crust of Mercury, the closest planet to the sun. Mercury has long puzzled scientists as it possesses many qualities that aren't common to other solar system planets. These include its very dark surface, . . . (continued at <https://www.space.com/mercury-diamond-layer-10-miles-thick-nasa-messenger>)



Webb Images Nearest Super-Jupiter, Opening A New Window To Exoplanet Research

Using the James Webb Space Telescope (JWST), an MPIA-led team of astronomers imaged a new exoplanet that orbits a star in the nearby triple system Epsilon Indi. The planet is a cold super-Jupiter exhibiting a temperature of around 0 degrees Celsius and a wide orbit comparable to that of Neptune around the sun. This measurement was only possible thanks to JWST's unprecedented imaging capabilities in the thermal infrared. . . . (continued at <https://phys.org/news/2024-07-webb-images-nearest-super-jupiter.html>)



How NASA's Roman Space Telescope Will Illuminate Cosmic Dawn

Today, enormous stretches of space are crystal clear, but that wasn't always the case. During its infancy, the universe was filled with a "fog" that made it opaque, cloaking the first stars and galaxies. NASA's upcoming Nancy Grace Roman Space Telescope will probe the universe's subsequent transition to the brilliant starscape we see today — an era known as cosmic dawn. . . . (continued at <https://phys.org/news/2024-07-nasa-roman-space-telescope-illuminate.html>)



NASA Says No Return Date Yet For Astronauts And Troubled Boeing Capsule At Space Station

Already more than a month late getting back, two NASA astronauts will remain at the International Space Station until engineers finish working on problems plaguing their Boeing capsule, officials said Thursday. est pilots Butch Wilmore and Suni Williams were supposed to visit the orbiting lab for about a week and return in mid-June, . . . (continued at <https://phys.org/news/2024-07-nasa-date-astronauts-boeing-capsule.html>)



Space News

News from around the Net

Perseverance Rover Discovers Rock With Potential Signs Of Ancient Life

A vein-filled rock is catching the eye of the science team of NASA's Perseverance rover. Nicknamed "Cheyava Falls" by the team, the arrowhead-shaped rock contains fascinating traits that may bear on the question of whether Mars was home to microscopic life in the distant past. Analysis by instruments aboard the rover indicates the rock possesses qualities that fit the definition of a possible indicator of ancient life. . . . (continued at <https://phys.org/news/2024-07-perseverance-rover-potential-ancient-life.html>)



Now Uranus' Moon Ariel Might Have An Ocean Too

Venus is known for being really quite inhospitable with high surface temperatures and Mars is known for its rusty red horizons. Even the moons of some of the outer planets have fascinating environments with Europa and Enceladus boasting underground oceans. Recent observations from the James Webb Space Telescope show that Ariel, a moon of Uranus, is also a strong candidate for a sub surface ocean. How has this conclusion been reached? Well JWST has detected carbon dioxide ice on the surface on the trailing edge of features trailing away from the orbital direction. The possible cause, an underground ocean! . . . (continued at <https://www.universetoday.com/167884/now-uranus-moon-ariel-might-have-an-ocean-too/#more-167884>)



Star-Mapping Mission Gaia Impacted By Micrometeoroid, Solar Storm

Having survived two recent threats — high-velocity space dust and enhanced solar activity — Gaia is now returning better data than ever. The European Space Agency's decade-old Gaia mission is in the process of mapping out the positions and velocities of more than 1 billion stars in the Milky Way. It's not easy accomplishing this feat in space, and Gaia has recently faced down two large hurdles, but the spacecraft is now back to full operations. . . . (continued at <https://skyandtelescope.org/astronomy-news/star-mapping-mission-gaia-impacted-by-micrometeoroid-solar-storm/>)



NASA's Webb Images Cold Exoplanet 12 Light-Years Away

An international team of astronomers using NASA's James Webb Space Telescope has directly imaged an exoplanet roughly 12 light-years from Earth. The planet, Epsilon Indi Ab, is one of the coldest exoplanets observed to date. The planet is several times the mass of Jupiter and orbits the K-type star Epsilon Indi A (Eps Ind A), which is around the age of our Sun, but slightly cooler. The team observed Epsilon Indi Ab using the coronagraph on Webb's MIRI (Mid-Infrared Instrument). Only a few tens of exoplanets have been directly imaged previously by space- and ground-based observatories. . . . (continued at <https://webbtelescope.org/contents/news-releases/2024/news-2024-127>)



Globular Cluster Ngc 6558 Explored With Gemini Observatory And Hubble Space Telescope

Using the Gemini Observatory and the Hubble Space Telescope (HST), an international team of astronomers has investigated a Galactic globular cluster known as NGC 6558. Results of the new study, published July 22 on the pre-print server arXiv, deliver important insights into the properties of this cluster. Globular clusters (GCs) are collections of tightly bound stars orbiting galaxies. Astronomers perceive them as natural laboratories enabling studies on the evolution of stars and galaxies. . . . (continued at <https://phys.org/news/2024-07-globular-cluster-ngc-explored-gemini.html>)



New Study Simulates Gravitational Waves From Failing Warp Drive

Imagine a spaceship driven not by engines, but by compressing the spacetime in front of it. That's the realm of science fiction, right? Well, not entirely. Physicists have been exploring the theoretical possibility of "warp drives" for decades, and a new study published in the Open Journal of Astrophysics takes things a step further — simulating the gravitational waves such a drive might emit if it broke down. . . . (continued at https://phys.org/news/2024-07-simulates-gravitational-warp.html#google_vignette)



Vivid Portrait Of Interacting Galaxies Marks Webb's Second Anniversary

12 July 2024 [weic2420 — Photo Release](#)



A duo of interacting galaxies known as Arp 142 commemorates the second science anniversary of the NASA/ESA/CSA James Webb Space Telescope. Their ongoing interaction was set in motion between 25 and 75 million years ago, when the Penguin (individually catalogued as NGC 2936) and the Egg (NGC 2937) completed their first pass. They will go on to shimmy and sway, completing several additional loops before merging into a single galaxy hundreds of millions of years from now.

The James Webb Space Telescope takes constant observations, including [images](#) and highly detailed data known as [spectra](#). Its operations have led to a 'parade' of discoveries by astronomers around the world. It has never felt more possible to explore every facet of the Universe.

The telescope's specialisation in capturing [infrared light](#) – which is beyond what our own eyes can detect – shows these galaxies, collectively known as Arp 142, locked in a slow cosmic dance. Webb's observations (which combine near- and mid-infrared light from Webb's [NIRCam](#) [Near-InfraRed Camera] and [MIRI](#) [Mid-Infrared Instrument], respectively) clearly show that they are joined by a blue haze that is a mix of stars and gas, a result of their mingling.

Let's dance

Before their first approach, the Penguin held the shape of a spiral. Today, its galactic centre gleams like an eye, its unwound arms now shaping a beak, head, backbone, and fanned-out tail.

Like all spiral galaxies, the Penguin is still very rich in gas and dust. The galaxies' 'dance' pulled gravitationally on the Penguin's thinner areas of gas and dust, causing them to crash in waves and form stars. Look for those areas in two places: what looks like a fish in its 'beak' and the 'feathers' in its "tail".

Surrounding these newer stars is smoke-like material that includes carbon-containing molecules, known as polycyclic aromatic hydrocarbons, which Webb is exceptional at detecting. Dust, seen as fainter, deeper orange arcs also swoops from its beak to tail feathers.

In contrast, the Egg's compact shape remains largely unchanged. As an elliptical galaxy, it is filled with ageing stars, and has a lot less gas and dust that can be pulled away to form new stars. If both were spiral galaxies, each would end the first 'twist' with new star formation and twirling curls, known as tidal tails.

Another reason for the Egg's undisturbed appearance is that these galaxies have approximately the same mass, which is why the smaller-looking elliptical wasn't consumed or distorted by the Penguin.

continued on next page

It is estimated that the Penguin and the Egg are about 100 000 light-years apart — quite close in astronomical terms. For context, the Milky Way galaxy and our nearest neighbour, the Andromeda Galaxy, are about 2.5 million light-years apart, about 30 times the distance. They too will interact, but not for about 4 billion years.

In the top right of the image is an edge-on galaxy, catalogued PGC 1237172, which resides 100 million light-years closer to Earth. It's also quite young, teeming with new, blue stars. In Webb's mid-infrared-only image, PGC 1237172 practically disappears. Mid-infrared light largely captures cooler, older stars and an incredible amount of dust. Since the galaxy's stellar population is so young, it 'vanishes' in mid-infrared light.

Webb's image is also overflowing with distant galaxies. Some have spiral and oval shapes, like those threaded throughout the Penguin's 'tail feathers', while others scattered throughout are shapeless dots. This is a testament to the sensitivity and resolution of the telescope's infrared instruments. (Compare Webb's view to the 2013 image from the NASA/ESA Hubble Space Telescope [here](#).) Even though these observations only took a few hours, Webb revealed far more distant, redder, and dustier galaxies than previous telescopes — one more reason to expect Webb to continue to expand our understanding of everything in the Universe.

Arp 142 lies 326 million light-years from Earth in the constellation Hydra.

Second year of science operations: in review

Over its second year of operations Webb has advanced its science goals with new discoveries about other worlds, the lifecycle of stars, the early Universe and galaxies over time. Astronomers have learned about [what conditions rocky planets can form in](#) and detected [icy ingredients for worlds](#), found [tellurium created in star mergers](#) and studied the supernova remnants [SN 1987A](#) and the [Crab Nebula](#).

Looking into the distant past, Webb has solved the mysteries of [how the Universe was reionised](#) and [hydrogen emission from galaxy mergers](#), and seen the most distant [black hole merger](#) and [galaxy](#) ever observed. Observations with Webb have also confirmed the long-standing [tension between measurements of the Hubble constant](#), deepening a different mystery around the Universe's expansion rate.

Webb has continued to produce incredible images of the cosmos, from the detailed beauty of the [Ring Nebula](#), to [supernova remnant Cassiopeia A](#), to a team effort with the the NASA/ESA [Hubble Space Telescope](#) and [ESA's Euclid](#) telescope looking at the [iconic Horsehead Nebula](#). Webb imagery was also combined with visible light observations from Hubble to create one of the most comprehensive views of the Universe ever, an image of [galaxy cluster MACS 0416](#).

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

continued on next page

Links

[Webb's anniversary images](#)

[Release on ESA website](#)

[Release on STScI website](#)

[Release on NASA website](#)

Contacts

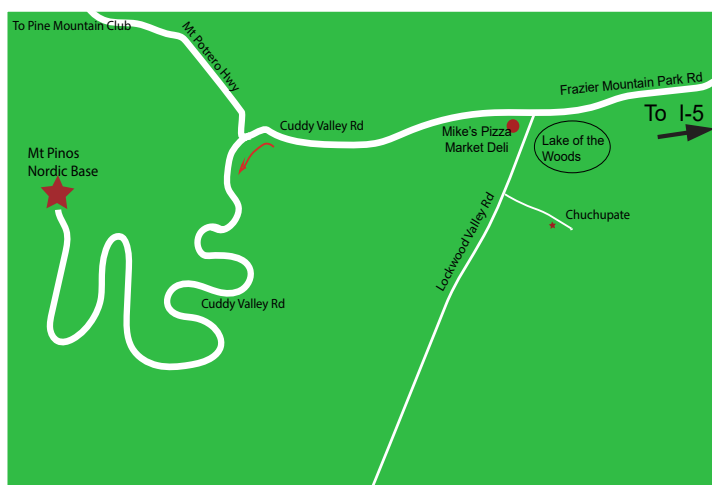
Bethany Downer
ESA/Webb Chief Science Communications Officer
Email: Bethany.Downer@esa.esa.int

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

Dark Sky Observing Sites

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

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



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.

Sky Chart



Location: Set from geolocation service
Latitude: 34° 39' N, longitude: 118° 10' W
Time: 2024 August 3, 22:00 (UTC -07:00)

Powered by: Heavens-Above.com

Solar System Summary

The **Sun** starts the month in Cancer, ending the month in central Leo

The Planets

Mercury is still visible in the evening twilight early in the month. After the inferior conjunction on the 19th it appears in the morning sky in the last days of the month.

Venus is still separating itself from the evening Sun increasing from 16° to 24° by the end of the month. The 2% Moon passes by less than 1° north at sunset on the 5th.

Mars rising after midnight, starts the month in Taurus, moving east while closing on Jupiter. On the 14th, it passes 1/3° north of Jupiter a few minutes before sunrise.

Jupiter rising 2 hours after continues moving east in Taurus, remain there till next June. On the 27th, at sunrise, the 37% waning Moon, Jupiter and Mars will make an equilateral triangle about 6° on each side.

Saturn is still in retrograde motion in Aquarius, that will last till mid-November. On the 20th the 97% Moon passes by 1/6° south, only 2.5 hours before Saturn rises....

Uranus continues moving east in Taurus, at mag 5.7, where it will remain till the end of the year, about 5° south of the Pleiades.

Neptune is moving west near the southern border of Pisces at 7.8.

Dwarf Planets

134340 Pluto spends the month, in retrograde, in western Capricorn, south of M75, moving west at mag 14.4.

1 Ceres at mag 8.3 spends the month in central teapot of Sagittarius making a retrograde loop.

2 Pallas in normal motion passing through the northern portion of Serpens Caput, then on to eastern Hercules at 10.

3 Juno continues moving east 4 1/2° north of the ecliptic. By the end of month it is at mag 11.2, still less than half the way across Virgo.

4 Vesta starts the month on the western edge of Leo. On the 19th Vesta swaps sides of the Sun to arrive in the morning twilight still in Leo.

Moon Phases



First Qtr Aug 12 Full Aug 19 Third Qtr Aug 26 New Aug 4

Sun and Moon Rise and Set*

Date	Moonrise	Moonset	Sunrise	Sunset
8/1/2024	03:00	18:27	06:03	19:54
8/5/2024	07:08	20:53	06:06	19:50
8/10/2024	11:51	22:51	06:10	19:45
8/15/2024	16:57	01:23	06:13	19:39
8/20/2024	20:29	07:14	06:17	19:33
8/25/2024	23:14	13:13	06:21	19:27
8/30/2024	02:56	17:54	06:24	19:20

Planet Data*

August 1

	Rise	Transit	Set	Mag	Phase%
Mercury	08:04	14:26	20:48	1.17	25.9
Venus	07:20	14:04	20:47	-3.91	96.0
Mars	01:31	08:35	15:40	0.89	88.9
Jupiter	01:57	09:03	16:10	-2.17	99.3
Saturn	21:44	03:28	09:16	0.82	99.9

August 15

	Rise	Transit	Set	Mag	Phase%
Mercury	06:52	13:13	19:34	4.15	2.3
Venus	07:49	14:14	20:39	-3.90	93.9
Mars	01:11	08:20	15:29	0.83	88.4
Jupiter	01:11	08:18	15:25	-2.24	99.1
Saturn	20:47	02:30	08:17	0.72	99.9

August 30

	Rise	Transit	Set	Mag	Phase%
Mercury	05:11	11:49	18:28	0.81	24.8
Venus	08:18	14:22	20:26	-3.91	91.3
Mars	00:48	08:02	15:14	0.74	87.9
Jupiter	00:16	07:28	14:35	-2.33	99.0
Saturn	19:45	01:27	07:12	0.62	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 August 3, 2024. The list is sorted by the transit time of the object.

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M81	Bode's Galaxy	Galaxy	UMa	09h 55m 33s	+69° 03.9'	7.8	Circ	14:03	Circ
M82	Cigar Galaxy	Galaxy	UMa	09h 55m 53s	+69° 40.8'	9.2	Circ	14:04	Circ
M95	NGC335	Galaxy	Leo	10h 43m 58s	+11° 42.2'	10.6	08:16	14:52	21:28
M96	NGC3368	Galaxy	Leo	10h 46m 46s	+11° 49.2'	10.1	08:18	14:55	21:31
M105	NGC3379	Galaxy	Leo	10h 47m 50s	+12° 34.9'	10.5	08:17	14:56	21:34
M108	NGC3556	Galaxy	UMa	11h 11m 31s	+55° 40.4'	10.6	Circ	15:19	Circ
M97	Owl Nebula	P Neb	UMa	11h 14m 48s	+55° 01.1'	12.0	Circ	15:23	Circ
M65	Leo Triplet	Galaxy	Leo	11h 18m 56s	+13° 05.5'	10.1	08:47	15:27	22:07
M66	Leo Triplet	Galaxy	Leo	11h 20m 15s	+12° 59.4'	9.7	08:48	15:28	22:08
M109	NGC3992	Galaxy	UMa	11h 57m 36s	+53° 22.4'	10.6	05:14	16:05	02:57
M98	NGC4192	Galaxy	Com	12h 13m 48s	+14° 54.0'	10.9	09:36	16:22	23:07
M99	Coma Pinwheel Galaxy	Galaxy	Com	12h 18m 50s	+14° 25.0'	10.4	09:43	16:27	23:11
M106	NGC4258	Galaxy	CVn	12h 18m 58s	+47° 18.2'	9.1	07:05	16:27	01:49
M61	Swelling Spiral	Galaxy	Vir	12h 21m 55s	+04° 28.3'	10.1	10:14	16:30	22:45
M40	Winnecke 4	Dbl+Asterism	UMa	12h 22m 12s	+58° 05.0'	8.7	Circ	16:30	Circ
M100	Mirror of M99	Galaxy	Com	12h 22m 55s	+15° 49.3'	10.1	09:42	16:31	23:19
M84	NGC4374	Galaxy	Vir	12h 25m 04s	+12° 53.2'	10.2	09:53	16:33	23:12
M85	NGC4382	Galaxy	Com	12h 25m 24s	+18° 11.4'	10.0	09:37	16:33	23:29
M86	NGC4406	Galaxy	Vir	12h 26m 12s	+12° 56.7'	9.9	09:54	16:34	23:14
M49	NGC4472	Galaxy	Vir	12h 29m 47s	+08° 00.0'	9.3	10:12	16:38	23:03
M87	Smoking Gun	Galaxy	Vir	12h 30m 49s	+12° 23.4'	9.6	10:01	16:39	23:17
M88	NGC4501	Galaxy	Com	12h 31m 59s	+14° 25.2'	10.2	09:56	16:40	23:24
M91	Missing Messier Object	Galaxy	Com	12h 35m 27s	+14° 29.7'	10.9	09:59	16:43	23:28
M89	NGC4552	Galaxy	Vir	12h 35m 40s	+12° 33.3'	10.9	10:05	16:43	23:22
M90	NGC4569	Galaxy	Vir	12h 36m 50s	+13° 09.7'	10.2	10:04	16:45	23:25
M58	NGC4579	Galaxy	Vir	12h 37m 44s	+11° 49.1'	10.4	10:09	16:45	23:22
M68	NGC4590	Globular	Hya	12h 39m 28s	-26° 44.5'	9.0	12:06	16:47	21:29
M104	Sombrero Galaxy	Galaxy	Vir	12h 39m 59s	-11° 37.3'	9.2	11:18	16:48	22:18
M59	NGC4621	Galaxy	Vir	12h 42m 02s	+11° 38.7'	10.7	10:14	16:50	23:26
M60	NGC4649	Galaxy	Vir	12h 43m 40s	+11° 33.1'	9.8	10:16	16:51	23:27
M94	Croc's Eye Galaxy	Galaxy	CVn	12h 50m 53s	+41° 07.1'	8.9	08:25	16:59	01:33
M64	Black Eye Galaxy	Galaxy	Com	12h 56m 44s	+21° 41.0'	9.3	09:57	17:04	00:12
M53	NGC5024	Globular	Com	13h 12m 55s	+18° 10.1'	8.5	10:25	17:21	00:16
M63	Sunflower Galaxy	Galaxy	CVn	13h 15m 49s	+42° 01.7'	9.3	08:44	17:24	02:04
NGC5139	Omega Centauri	Globular	Cen	13h 26m 48s	-47° 29.0'	3.6	14:46	17:35	20:24
NGC5169		Galaxy	CVn	13h 28m 10s	+46° 40.3'	14.0	08:20	17:36	02:52
NGC5204		Galaxy	UMa	13h 29m 36s	+58° 25.1'	11.3	Circ	17:37	Circ

Desert Sky Observer

www.avastronomyclub.org

August 2024

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M51	Whirlpool Galaxy	Galaxy	CVn	13h 29m 52s	+47° 11.7'	8.9	08:17	17:38	02:58
Arp85	M51B	Galaxy	CVn	13h 29m 58s	+47° 16.0'	9.6	08:16	17:38	02:59
NGC5182		Galaxy	Hya	13h 30m 41s	-28° 09.0'	13.0	13:02	17:38	22:14
NGC5214		Galaxy	CVn	13h 32m 49s	+41° 52.3'	14.0	09:02	17:41	02:20
M83	Southern Pinwheel Galaxy	Galaxy	Hya	13h 37m 00s	-29° 51.8'	8.0	13:15	17:45	22:14
HR5144	1 Boo	Triple	Boo	13h 40m 40s	+19° 57.3'	5.8	10:47	17:48	00:50
NGC5283		Galaxy	Dra	13h 41m 06s	+67° 40.3'	14.0	Circ	17:49	Circ
M3	NGC5272	Globular	CVn	13h 42m 11s	+28° 22.5'	7.0	10:18	17:50	01:22
NGC5286	C84	Globular	Cen	13h 46m 24s	-51° 22.0'	7.6	15:47	17:54	20:01
NGC5292		Galaxy	Cen	13h 47m 40s	-30° 56.4'	14.0	13:30	17:55	22:20
NGC5356		Galaxy	Vir	13h 54m 59s	+05° 20.0'	14.0	11:45	18:03	00:20
NGC5363		Galaxy	Vir	13h 56m 07s	+05° 15.2'	10.2	11:46	18:04	00:21
NGC5447	III-787	Neb	UMa	14h 02m 29s	+54° 16.3'		06:47	18:10	05:33
M101	Pinwheel Galaxy	Galaxy	UMa	14h 03m 13s	+54° 20.9'	8.2	06:44	18:11	05:38
NGC5461	III-788	Neb	UMa	14h 03m 42s	+54° 19.0'		06:46	18:11	05:37
NGC5485		Galaxy	UMa	14h 07m 11s	+55° 00.0'	11.5	Circ	18:15	Circ
NGC5460		Open	Cen	14h 07m 27s	-48° 20.6'	5.6	15:34	18:15	20:56
NGC5500		Galaxy	Boo	14h 10m 15s	+48° 32.7'	14.0	08:44	18:18	03:53
IC991		Galaxy	Vir	14h 17m 48s	-13° 52.3'	13.0	13:02	18:26	23:49
HR5362	SAO224838	Dbl	Lup	14h 20m 10s	-43° 03.5'	5.6	15:05	18:28	21:51
IC4406	Retina Nebula	P Neb	Lup	14h 22m 26s	-44° 09.0'	11.0	15:15	18:30	21:46
HR5409	Phi Vir, 105 Vir	Triple	Vir	14h 28m 12s	-02° 13.6'	4.8	12:39	18:36	00:33
NGC5669		Galaxy	Boo	14h 32m 44s	+09° 53.4'	12.0	12:10	18:41	01:11
NGC5689		Galaxy	Boo	14h 35m 30s	+48° 44.5'	11.9	09:07	18:43	04:20
M102	Spindle Galaxy (duplicate of M101?)	Galaxy	Dra	15h 06m 30s	+55° 45.7'	10.8	Circ	19:14	Circ
NGC5875		Galaxy	Boo	15h 09m 13s	+52° 31.6'	13.0	08:45	19:17	05:49
NGC5907	Splinter Galaxy	Galaxy	Dra	15h 15m 54s	+56° 19.7'	11.4	Circ	19:24	Circ
NGC5882		P Neb	Lup	15h 16m 50s	-45° 38.9'	11.0	16:20	19:25	22:29
NGC5897		Globular	Lib	15h 17m 24s	-21° 00.6'	8.6	14:24	19:25	00:26
M5	NGC5904	Globular	Ser	15h 18m 33s	+02° 04.9'	7.0	13:18	19:26	01:35
Barnard228	B228	DkNeb	Lup	15h 44m 00s	-34° 30.0'		15:42	19:52	00:01
IC4593	White Eyed Pea	P Neb	Her	16h 11m 44s	+12° 04.3'	11.0	13:42	20:20	02:57
IC4592	Jabbah	Neb	Sco	16h 11m 59s	-19° 27.4'		15:14	20:20	01:26
M80	NGC6093	Globular	Sco	16h 17m 03s	-22° 58.5'	8.5	15:30	20:25	01:19
IC4601		Neb	Sco	16h 20m 18s	-20° 04.9'		15:24	20:28	01:32
Abell38		P Neb	Sco	16h 23m 17s	-31° 44.9'	11.7	16:09	20:31	00:53
M4	Cat's Eye	Globular	Sco	16h 23m 35s	-26° 31.5'	7.5	15:49	20:31	01:13
IC4603	Rho Ophiuchi Complex [1]	Neb	Oph	16h 25m 24s	-24° 28.0'		15:44	20:33	01:23

Desert Sky Observer

www.avastronomyclub.org

August 2024

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
IC4604	Rho Ophiuchi Complex [2]	Neb	Oph	16h 25m 33s	-23° 26.5'		15:40	20:33	01:26
NGC6124	C75	Open	Sco	16h 25m 36s	-40° 40.0'	5.8	16:56	20:33	00:11
Abell39		P Neb	Her	16h 27m 33s	+27° 54.5'	12.9	13:06	20:35	04:05
IC4605		Neb	Sco	16h 30m 12s	-25° 06.8'		15:51	20:38	01:25
NGC6153		P Neb	Sco	16h 31m 31s	-40° 15.2'	12.0	16:59	20:39	00:20
NGC6181		Galaxy	Her	16h 32m 21s	+19° 49.5'	11.9	13:39	20:40	03:41
NGC6171		Globular	Oph	16h 32m 32s	-13° 03.1'	8.1	15:15	20:40	02:06
NGC6178		Open	Sco	16h 35m 47s	-45° 38.6'	7.2	17:39	20:44	23:48
NGC6193	C82	Open	Ara	16h 41m 18s	-48° 46.0'	5.2	18:12	20:49	23:26
M13	Hercules Globular Cluster	Globular	Her	16h 41m 41s	+36° 27.5'	7.0	12:42	20:49	04:57
NGC6210	Turtle Planetary Nebula	P Neb	Her	16h 44m 30s	+23° 48.0'	9.0	13:38	20:52	04:07
Barnard44a		DkNeb	Sco	16h 44m 45s	-40° 20.0'		17:13	20:53	00:32
NGC6204		Open	Ara	16h 46m 09s	-47° 01.0'	8.2	18:01	20:54	23:47
M12	Gumball Globular	Globular	Oph	16h 47m 14s	-01° 56.8'	8.0	14:58	20:55	02:52
NGC6231	Table of Scorpius	Open	Sco	16h 54m 00s	-41° 48.0'	2.6	17:31	21:02	00:33
IC4628	Prawn Nebula	Neb	Sco	16h 56m 58s	-40° 27.3'		17:26	21:05	00:44
NGC6254		Globular	Oph	16h 57m 09s	-04° 05.9'	6.6	15:14	21:05	02:56
Barnard47	B47	DkNeb	Oph	16h 59m 42s	-22° 38.0'		16:12	21:07	02:03
M62	Flickering Globular	Globular	Oph	17h 01m 13s	-30° 06.7'	8.0	16:41	21:09	01:37
M19	NGC6273	Globular	Oph	17h 02m 38s	-26° 16.0'	8.5	16:27	21:10	01:53
Barnard51	B51	DkNeb	Oph	17h 04m 44s	-22° 15.0'		16:15	21:13	02:10
IC4637		P Neb	Sco	17h 05m 10s	-40° 53.1'	14.0	17:36	21:13	00:49
Barnard56		DkNeb	Sco	17h 08m 48s	-32° 05.0'		16:56	21:17	01:37
Barnard59	Pipe Nebula	DkNeb	Oph	17h 11m 23s	-27° 29.0'		16:41	21:19	01:58
NGC6302	Bug Nebula	P Neb	Sco	17h 13m 42s	-37° 06.0'	9.6	17:24	21:21	01:19
Barnard251	B251	DkNeb	Oph	17h 13m 48s	-20° 09.0'		16:18	21:22	02:25
Barnard63	B63	DkNeb	Oph	17h 16m 00s	-21° 28.0'		16:24	21:24	02:23
M92	NGC6341	Globular	Her	17h 17m 07s	+43° 08.1'	7.5	12:37	21:25	06:12
M9	NGC6333	Globular	Oph	17h 19m 12s	-18° 31.0'	9.0	16:18	21:27	02:36
NGC6326		P Neb	Ara	17h 20m 46s	-51° 45.2'	12.0	19:27	21:29	23:30
Barnard256	B256	DkNeb	Oph	17h 22m 12s	-28° 49.0'		16:56	21:30	02:03
Barnard67a	B67a	DkNeb	Oph	17h 22m 30s	-21° 53.0'		16:32	21:30	02:29
Barnard71	B71	DkNeb	Oph	17h 23m 02s	-24° 00.0'		16:40	21:31	02:22
NGC6357	Lobster Nebula	Neb	Sco	17h 24m 43s	-34° 12.1'		17:21	21:32	01:43
IC4651		Open	Ara	17h 24m 52s	-49° 56.5'	6.9	19:08	21:33	23:57
Abell41		P Neb	Ser	17h 29m 04s	-15° 13.3'	13.9	16:18	21:37	02:56
Abell42		P Neb	Oph	17h 31m 31s	-08° 19.1'	14.6	16:00	21:39	03:19
Barnard78	B78	DkNeb	Oph	17h 32m 00s	-25° 35.0'		16:54	21:40	02:25
NGC6388		Globular	Sco	17h 36m 17s	-44° 44.1'	6.9	18:33	21:44	00:55

Desert Sky Observer

www.avastronomyclub.org

August 2024

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M14	NGC6402	Globular	Oph	17h 37m 36s	-03° 14.7'	9.5	15:52	21:45	03:39
Barnard276	B276	DkNeb	Oph	17h 39m 39s	-19° 49.0'		16:42	21:47	02:52
M6	Butterfly Cluster	Open	Sco	17h 40m 20s	-32° 15.2'	4.5	17:29	21:48	02:08
NGC6397	C86	Globular	Ara	17h 40m 42s	-53° 40.0'	5.6	20:19	21:48	23:18
NGC6426		Globular	Oph	17h 44m 55s	+03° 10.1'	11.2	15:41	21:53	04:04
Barnard83a	B83a	DkNeb	Sgr	17h 45m 18s	-20° 00.0'		16:49	21:53	02:57
IC4665		Open	Oph	17h 46m 30s	+05° 39.0'	4.2	15:36	21:54	04:13
NGC6445	Crescent Nebula	P Neb	Sgr	17h 49m 15s	-20° 00.6'	13.0	16:53	21:57	03:01
NGC6503		Galaxy	Dra	17h 49m 27s	+70° 08.6'	10.2	Circ	21:57	Circ
NGC6441		Globular	Sco	17h 50m 13s	-37° 03.0'	7.4	18:01	21:58	01:55
Barnard283	B283	DkNeb	Sco	17h 51m 00s	-33° 52.0'		17:46	21:59	02:11
Barnard285	B285	DkNeb	Ser	17h 51m 32s	-12° 52.0'		16:33	21:59	03:26
M7	Ptolemy's Cluster	Open	Sco	17h 53m 51s	-34° 47.6'	3.5	17:53	22:02	02:10
IC4670		Neb	Sgr	17h 55m 07s	-21° 44.6'		17:04	22:03	03:02
NGC6501		Galaxy	Her	17h 56m 04s	+18° 22.3'	12.3	15:07	22:04	05:00
M23	NGC6494	Open	Sgr	17h 57m 04s	-18° 59.1'	6.0	16:57	22:05	03:12
NGC6543	Cat Eye Nebula	P Neb	Dra	17h 58m 36s	+66° 38.0'	8.1	Circ	22:06	Circ
NGC6496		Globular	Sco	17h 59m 04s	-44° 16.0'	9.2	18:52	22:07	01:21
Barnard291	B291	DkNeb	Sgr	17h 59m 43s	-33° 53.0'		17:55	22:07	02:20
Barnard292	B292	DkNeb	Sgr	18h 00m 34s	-33° 20.0'		17:53	22:08	02:23
Barnard293	B293	DkNeb	Sgr	18h 01m 12s	-35° 20.0'		18:03	22:09	02:15
M20	Trifid Nebula	Open+D Neb	Sgr	18h 02m 42s	-22° 58.2'	5.0	17:16	22:10	03:05
M8	Lagoon Nebula	Open+D Neb	Sgr	18h 03m 41s	-24° 22.7'	5.0	17:22	22:11	03:01
Barnard295	B295	DkNeb	Sgr	18h 04m 05s	-31° 09.0'		17:48	22:12	02:36
M21	NGC6531	Open	Sgr	18h 04m 13s	-22° 29.3'	7.0	17:16	22:12	03:08
NGC6530		Open	Sgr	18h 04m 31s	-24° 21.5'	4.6	17:22	22:12	03:02
NGC6528		Globular	Sgr	18h 04m 50s	-30° 03.3'	9.5	17:44	22:13	02:41
IC4684		Neb	Sgr	18h 09m 08s	-23° 26.1'		17:24	22:17	03:10
IC4685		Neb	Sgr	18h 09m 18s	-23° 59.2'		17:26	22:17	03:08

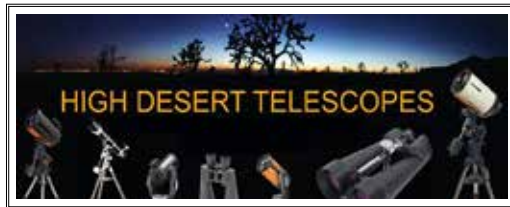
And - Andromeda	Cep - Cepheus	Cyg - Cygnus	Leo - Leo	Pav - Pavo	Sge - Sagitta
Ant - Antlia	Cet - Cetus	Del - Delphinus	Lep - Lepus	Peg - Pegasus	Sgr - Sagittarius
Aps - Apus	Cha - Chamaeleon	Dor - Dorado	Lib - Libra	Per - Perseus	Tau - Taurus
Aql - Aquila	Cir - Circinus	Dra - Draco	LMi - Leo Minor	Phe - Phoenix	Tel - Telescopium
Aqr - Aquarius	CMA - Canis Major	Equ - Equuleus	Lup - Lupus	Pic - Pictor	TrA - Triangulum
Ara - Ara	CMi - Canis Minor	Eri - Eridanus	Lyn - Lynx	PsA - Pisces Austrinus	Australe
Ari - Aries	Cnc - Cancer	For - Fornax	Lyr - Lyra	Psc - Pisces	Tri - Triangulum
Aur - Auriga	Col - Columba	Gem - Gemini	Men - Mensa	Pup - Puppis	Tuc - Tucana
Boo - Bootes	Com - Coma Berenices	Gru - Grus	Mic - Microscopium	Pyx - Pyxis	UMa - Ursa Major
Cae - Caelum	CrA - Corona Australis	Her - Hercules	Mon - Monoceros	Ret - Reticulum	UMi - Ursa Minor
Cam - Camelopardis	CrB - Corona Borealis	Hor - Horologium	Mus - Musca	Scl - Sculptor	Vel - Vela
Cap - Capricornus	Crt - Crater	Hya - Hydra	Nor - Norma	Sco - Scorpius	Vir - Virgo
Car - Carina	Cru - Crux	Hyi - Hydrus	Oct - Octans	Sct - Scutum	Vol - Volans
Cas - Cassiopeia	Crv - Corvus	Ind - Indus	Oph - Ophiuchus	Ser - Serpens	Vul - Vulpecula
Cen - Centaurus	CVn - Canes Venatici	Lac - Lacerta	Ori - Orion	Sex - Sextans	

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