

Volume 45.5

May 2025

# Desert Sky Observer

Antelope Valley Astronomy Club



# Desert Sky Observer

www.avastronomyclub.org

May 2025

## Upcoming Events

- May 9: Club Meeting / Painting Class
- May 17: Moonwalk @ PDW 8:30 pm
- May 24: DSSP @ Chuchupate ? ?
- May 24: ~~Mt Wilson Field trip~~ **CANCELED**
- May 31: Lunar Club @ Location TBA

Every clear night: Personal Star Party

- June 7: Moonwalk @ PDW 8:30 pm
- June 13: Club Meeting
- June 28: DSSP @ Chuchupate ?

## Board Members

**President:** Phil Wriedt (661) 917-4874  
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## Appointed Positions

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vacant  
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**Club Historian:** vacant  
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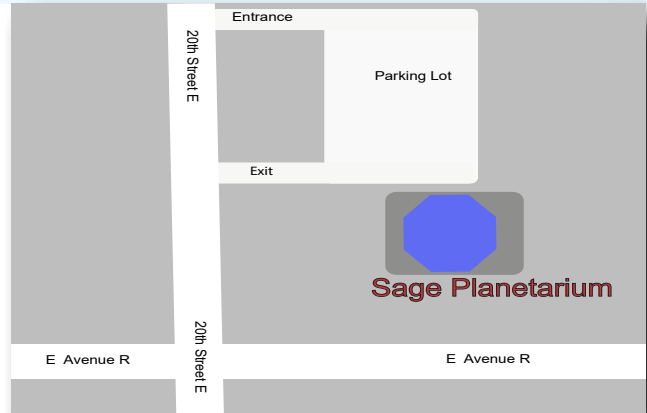
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AVAC Calendar



## Monthly Meetings

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

## Membership

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

The Club has three categories of membership.

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

Membership entitles you to ...

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

AVAC  
PO Box 8545  
Lancaster, CA 93539-8545



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

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

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

## President's Message

By Phil Wriedt

Hi there,

We were part of the public star party at the College of the Canyons on the 25th; this was a great opportunity to meet with members of the Santa Clarita Club (The Local Group) and the science students interested in astronomy. Unfortunately, the clouds and cold seem to have kept the telescopes inside. Rod and I had telescopes there and showed photos of what we couldn't see.

Our next Moonwalk is on May 17th. Sunset is at 7:50 pm and astronomical dusk is late at 9:29 pm. Jupiter and Mars are the only planets visible. The Moon won't be visible as it's waning gibbous and won't rise until 11:35 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. Hopefully it will be warmer than a icebox.

On the 24/25th of May we will have our third try at a first Dark Sky Star Party of the year, this time , maybe at Chuchupate, maybe at Red Cliffs. The last two months unfortunately our plans where impacted by rain, winds, and clouds. Every other site for our star parties have been plagued by the same problems. I don't know maybe it won't be raining, I know I said that before. Like the Moonwalks, the weather will rule what happens. Please don't forget warm clothes, food, water and toilet paper.

On the 31st the Lunar Club will meet. There will be a 5 day Moon. When the Board hammered out the calendar for this year, we thought, let's have it at Prime Desert. The thing is, we haven't heard back from the City... so, we will let you know the location later this month by email.

Keep Looking Up, Phil

## On The Cover

Note: North is 4.2° right of vertical RA: 6h 41' 12.38" DEC: 9° 25' 36.59" Dist: 3000 ly ( Monoceros )

*Resembling a nightmarish beast rearing its head from a crimson sea, this celestial object is actually just a pillar of gas and dust. Called the Cone Nebula (in NGC 2264) - so named because in ground-based images it has a conical shape - this monstrous pillar resides in a turbulent star-forming region. This picture, taken by the newly installed Advanced Camera for Surveys (ACS) aboard the NASA/ESA Hubble Space Telescope, shows the upper 2.5 light-years of the Cone, a height that equals 23 million roundtrips to the Moon. The entire pillar is seven light-years long.*

*Radiation from hot, young stars (located beyond the top of the image) has slowly eroded the nebula over millions of years. Ultraviolet light heats the edges of the dark cloud, releasing gas into the relatively empty region of surrounding space. There, additional ultraviolet radiation causes the hydrogen gas to glow, which produces the red halo of light seen around the pillar. A similar process occurs on a much smaller scale to gas surrounding a single star, forming the bow-shaped arc seen near the upper left side of the Cone. This arc, seen previously with the Hubble telescope, is 65 times larger than the diameter of our Solar System. The blue-white light from surrounding stars is reflected by dust. Background stars can be seen peeking through the evaporating tendrils of gas, while the turbulent base is pockmarked with stars reddened by dust.*

*Over time, only the densest regions of the Cone will be left. But inside these regions, stars and planets may form. The Cone Nebula resides 2500 light-years away in the constellation Monoceros.*

## From the Secretary

By Rose Moore

Members:

Thank you to all the members who helped out and participated in last month's events!

For our meeting night on Friday May 9th, we will be having Sue's Astronomy Paint Class! This is open to members and their guests, and will be open to the public at a later time. Cost is \$20 per person: child or adult. This will help pay for the canvases, paints, brushes, etc. Let me know if you would like to participate and I'll put you on the list. Arrive between 6:30 and 6:50pm so that you may pay Rod for the class. Please pay by check or cash. Start time is 7pm. Come out and have some fun and bring your painting home!

Our next event is a Prime Desert Moon Walk, on Saturday May 17th at 8:30pm. We need members with telescopes for this event. Weather permitting, free and open to the public. Set up time is 30-60 minutes prior to event. If you don't have a scope, come out to take the walk with Jeremy. Sunset is at 7:53pm. Planets up are Jupiter, till 10:02pm, and Mars. Moon is up at midnight. Location for new members: 43201 35th St W, Lancaster, CA 93536.

Our dark sky party for May will be Saturday May 24th. Weather permitting. Free and open to the public. Site to be announced, probably Chuchupate. An email will be sent out that week with further details.

We have a Lunar Club event planed on Saturday May 31st. Arrival time and location to be announced. It will be a waxing crescent Moon, about 28%, up till midnight. Sunset is at 8:02pm. You may bring your own snacks and drinks to this event. Further info coming.

Coming up in June: another PDW and DSSP; and we will have Tim Thompson as our guest speaker for our meeting in June! His presentation will be on the Sun.

Hoping for warmer weather, Rose

## On The Cover ... continued

*The Cone is a cousin of the M16 pillars, which the Hubble telescope imaged in 1995. Consisting mainly of cold gas, the pillars in both regions resist being eroded away by the blistering ultraviolet radiation from young, massive stars. Pillars like the Cone and M16 are common in large regions of star birth. Astronomers believe that these pillars may be incubators for developing stars.*

*The ACS made this observation on 2 April 2002. The colour image is constructed from three separate images taken in blue, near-infrared, and hydrogen-alpha filters.*

*Image credit: NASA, the ACS Science Team (H. Ford, G. Illingworth, M. Clampin, G. Hartig, T. Allen, K. Anderson, F. Bartko, N. Benitez, J. Blakeslee, R. Bouwens, T. Broadhurst, R. Brown, C. Burrows, D. Campbell, E. Cheng, N. Cross, P. Feldman, M. Franx, D. Golimowski, C. Gronwall, R. Kimble, J. Krist, M. Lesser, D. Magee, A. Martel, W. J. McCann, G. Meurer, G. Miley, M. Postman, P. Rosati, M. Sirianni, W. Sparks, P. Sullivan, H. Tran, Z. Tsvetanov, R. White, and R. Woodruff) and ESA*

*Credit: NASA, Holland Ford (JHU), the ACS Science Team and ESA*

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

Sue will be having a painting class on May 9th. We can only handle around 25 people so please sign up as soon as possible. The cost is \$20 and all of the money goes to the Club for future events. The painting will start at 7:00 PM and we need everyone to start getting there by 6:30 so we can have time to set up.

On May 3, 90 minutes after sunset, the Moon, Mars and the Beehive Cluster ( M44) will all be together; early May 23 in the morning, Venus, the Moon, Saturn, and Neptune will all be a few degrees apart.

I'm planning to go to the DSSP at Chuchupate May 24 and will be there late but planning to stay and observe on Sunday night also.

Lastly, certainly not least, on May 31, with a 5 day moon, we are having a Lunar Club event starting at 7:30 PM. Wait for an email for the location.

See you soon and pray for great skies, Matthew Leone



A busy night at Stone Henge  
as workers move all the stones  
forward one hour..

## Space News

News from around the Net

### **Webb Confirms the Coldest Planet Ever Found. It's Orbiting a White Dwarf**

In 2020, astronomers detected WD 1856+534 b, a gas giant that orbits a star 81 light-years from Earth. This exoplanet, which is roughly six times the mass of Jupiter (making it a “super-Jupiter”), was the first transiting planet known to orbit a white dwarf (WD) star. In a recent paper, an international team of astronomers describes their observations of this exoplanet using the Mid-Infrared Instrument (MIRI) aboard the James Webb Space Telescope (JWST). Their observation confirmed that WD 1856+534 b is the coldest exoplanet ever observed. . . . (continued at <https://www.universetoday.com/articles/webb-confirms-the-coldest-planet-ever-found-its-orbiting-a-white-dwarf> )



### **Astronomers Discover A Planet That's Rapidly Disintegrating, Producing A Comet-Like Tail**

MIT astronomers have discovered a planet some 140 light-years from Earth that is rapidly crumbling to pieces. The disintegrating world is about the mass of Mercury, although it circles about 20 times closer to its star than Mercury does to the sun, completing an orbit every 30.5 hours. At such close proximity to its star, the planet is likely covered in magma that is boiling off into space. As the roasting planet whizzes around its star, it is shedding an enormous amount of surface minerals and effectively evaporating away.. . (continued at <https://www.sciencedaily.com/releases/2025/04/250422131330.htm> )



### **The Webb Telescope Is Making Incredible Discoveries: It May Go Dark**

The political news these days is enough to make some Chicagoans wish they were a million miles away. But consider this: Even in the depths of space, there's no escape from politics. The \$10 billion James Webb Space Telescope is literally parked 1 million miles away. In the nearly three years since it became operational, “Webb,” as it's called, has made some incredible findings. Webb uses infrared scanning to show how stars and galaxies form, and to study the atmospheres of distant planets. Its capabilities complement the aging Hubble Space Telescope, which orbits Earth at an altitude of only 340 miles or so. . . . (continued at <https://phys.org/news/2025-04-webb-telescope-incredible-discoveries-dark.html> )



### **Zooming Into The Sun With Solar Orbiter**

Solar Orbiter's latest images shows the full Sun in unprecedented detail. They were taken on 7 March, when the spacecraft was crossing directly between the Earth and Sun. One of the images, taken by the Extreme Ultraviolet Imager (EUI) is the highest resolution image of the Sun's full disc and outer atmosphere, the corona, ever taken. Another image, taken by the Spectral Imaging of the Coronal Environment (SPICE) instrument represents the first full Sun image of its kind in 50 years, and by far the best one, taken at the Lyman-beta wavelength of ultraviolet light that is emitted by hydrogen gas. . . . (continued at [https://www.esa.int/Science\\_Exploration/Space\\_Science/Solar\\_Orbiter/Zooming\\_into\\_the\\_Sun\\_with\\_Solar\\_Orbiter](https://www.esa.int/Science_Exploration/Space_Science/Solar_Orbiter/Zooming_into_the_Sun_with_Solar_Orbiter) )



### **NASA Continues To Study Pulsars, 50 Years After Their Chance Discovery**

A little bit of “scruff” in scientific data 50 years ago led to the discovery of pulsars – rapidly spinning dense stellar corpses that appear to pulse at Earth. Astronomer Jocelyn Bell made the chance discovery using a vast radio telescope in Cambridge, England. Although it was built to measure the random brightness flickers of a different category of celestial objects called quasars, the 4.5-acre telescope produced unexpected markings on Bell's paper data recorder every 1.33730 seconds. The pen traces representing radio brightness revealed an unusual phenomenon. “The pulses were so regular, so much like a ticking clock, that Bell and her supervisor Anthony Hewish couldn't believe it was a natural phenomenon,” said Zaven Arzoumanian of NASA's Goddard Space Flight Center in Greenbelt, Maryland. “Once they found a second, third and fourth they started to think differently.” . . . (continued at <https://www.nasa.gov/missions/station/nasa-continues-to-study-pulsars-50-years-after-their-chance-discovery/> )



## Space News

News from around the Net

### **Supermassive Black Hole Wakes Up**

A galaxy 330 million light-years away in the Virgo constellation hosts a supermassive black hole with the mass of about a million Suns, and for two decades that black hole has lain dormant. Then, literally overnight, the switch flipped. Astronomers around the world watched as a sudden flow of gas into the maw lit a flickering beacon of light, marking the awakening of an active galactic nucleus (AGN). Known by the designation bestowed by the automated Zwicky Transient Facility that detected the source, ZTF19acnsky (nicknamed “Ansky”) brightened at ultraviolet through infrared wavelengths over a few months after its discovery. . . .(continued at <https://skyandtelescope.org/astronomy-news/supermassive-black-hole-wakes-up/> )



### **NASA’s Dragonfly Nuclear-Powered Helicopter Clears Key Hurdle Ahead Of 2028 Launch Toward Huge Saturn Moon Titan**

NASA’s pioneering Dragonfly mission has cleared a key hurdle, keeping it on track for a 2028 launch to Saturn’s huge moon Titan. Dragonfly, a car-sized, nuclear-powered rotorcraft designed to investigate Titan’s potential to host life, passed its Critical Design Review, NASA announced on Thursday (April 24). “Passing this mission milestone means that Dragonfly’s mission design, fabrication, integration and test plans are all approved, and the mission can now turn its attention to the construction of the spacecraft itself,” a NASA statement reads. . . .(continued at <https://www.space.com/space-exploration/missions/nasas-dragonfly-nuclear-powered-helicopter-clears-key-hurdle-ahead-of-2028-launch-toward-huge-saturn-moon-titan> )



### **Asteroid Vesta Now An Easy Catch In Binoculars**

Vesta is not only the brightest asteroid but one of only a handful orbited by a space probe. NASA’s Dawn mission spent 14 months in Vesta’s gravitational embrace in 2011-12 before shoving off for Ceres. Ironically, the probe’s instruments revealed that Vesta possesses both highly reflective, basaltic rock and significant amounts of dark, carbonaceous material delivered by meteorite impacts. As for the origin of the asteroid’s brilliance, a 2012 study discovered the signature of an ancient magnetic field frozen into the Vesta meteorite ALHA81001 3.7 billion years ago. Vesta is one of the few if only confirmed protoplanets in the solar system. . . .(continued at <https://skyandtelescope.org/astronomy-news/asteroid-vesta-now-an-easy-catch-in-binoculars/> )



### **ESO Report Shows Energy Plant Would Cause ‘Devastating And Irreversible’ Impact**

A new study by the European Southern Observatory (ESO) contradicts corporate claims that a proposed hydrogen fuel facility would not harm observatories in Chile. Earlier this year, ESO alerted the astronomy community that its facilities at Paranal — with some of the world’s darkest skies — were threatened by the plans to build a 7,400-acre (3,000 hectares) energy processing megaproject. The Applied Energy Services (AES) Corporation proposal is under review by the Chilean government. The so-called INNA hydrogen manufacturing plant is only kilometers away from Paranal’s astronomy complex, . . .(continued at <https://www.astronomy.com/science/energy-plant-would-cause-devastating-and-irreversible-impact/> )



### **No Relief For Astronomy Industry In New Tariff Exemptions**

Exceptions announced late Friday night to the Trump administration’s so-called “reciprocal tariffs” are unlikely to provide any relief to the amateur astronomy industry, as they do not cover categories for telescopes, mounts, or digital cameras. . . . The escalating trade tensions between the U.S. and China have thrown the telescope industry into chaos. On April 10, Celestron froze all outbound shipments from China and from its warehouse to U.S. dealers until the situation becomes clearer. . . .(continued at <https://www.astronomy.com/observing/no-relief-for-astronomy-industry-in-new-tariff-exemptions/> )

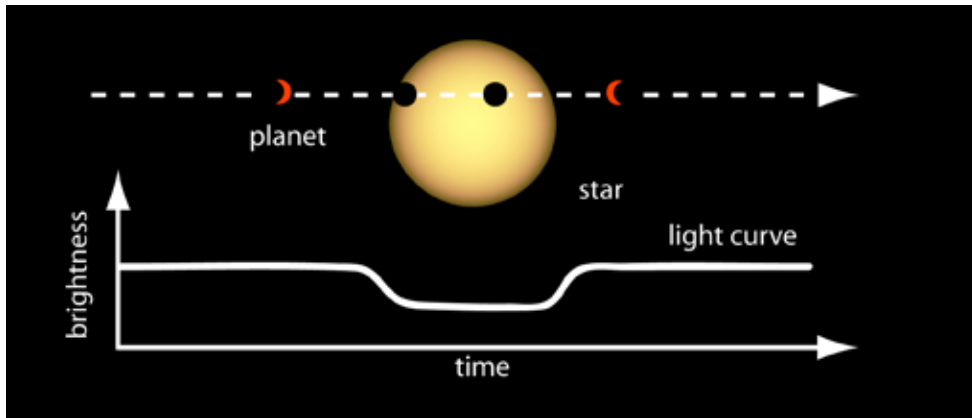


## May's Night Sky Notes: How Do We Find Exoplanets?

By: Dave Prosper Updated by: Kat Troche, Astronomy Society of the Pacific, NASA Night Sky Network

Astronomers have been trying to discover evidence that worlds exist around stars other than our Sun since the 19th century. By the mid-1990s, technology finally caught up with the desire for discovery and led to the first discovery of a planet orbiting another sun-like star, [Pegasi 51b](#). Why did it take so long to discover these distant worlds, and what techniques do astronomers use to find them?

### The Transit Method



*A planet passing in front of its parent star creates a drop in the star's apparent brightness, called a transit. Exoplanet Watch participants can look for transits in data from ground-based telescopes, helping scientists refine measurements of the length of a planet's orbit around its star. Credit: NASA's Ames Research Center*

One of the most famous exoplanet detection methods is the transit method, used by [Kepler](#) and other observatories. When a planet crosses in front of its host star, the light from the star dips slightly in brightness. Scientists can confirm a planet orbits its host star by repeatedly detecting these incredibly tiny dips in brightness using sensitive instruments. If you can imagine trying to detect the dip in light from a massive searchlight when an ant crosses in front of it, at a distance of tens of miles away, you can begin to see how difficult it can be to spot a planet from light-years away! Another drawback to the transit method is that the distant solar system must be at a favorable angle to our point of view here on Earth – if the distant system's angle is just slightly askew, there will be no transits. Even in our solar system, a transit is very rare. For example, there were two transits of Venus visible across our Sun from Earth in this century. But the next time Venus transits the Sun as seen from Earth will be in the year 2117 – more than a century from now, even though Venus will have completed nearly 150 orbits around the Sun by then!

### The Wobble Method



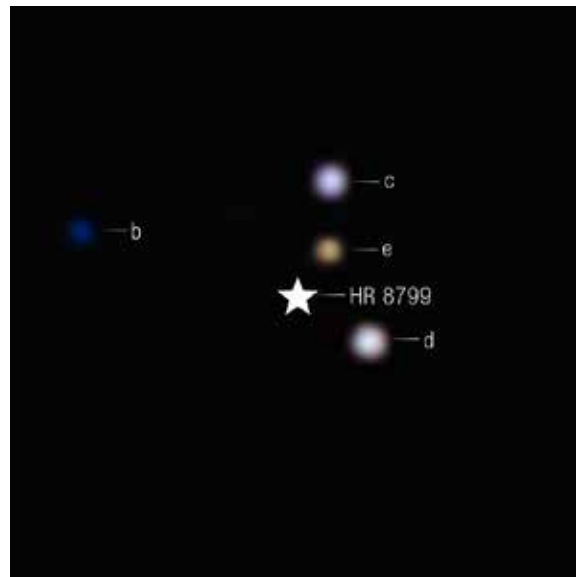
*As a planet orbits a star, the star wobbles. This causes a change in the appearance of the star's spectrum called Doppler shift. Because the change in wavelength is directly related to relative speed, astronomers can use Doppler shift to calculate exactly how fast an object is moving toward or away from us. Astronomers can also track the Doppler shift of a star over time to estimate the mass of the planet orbiting it. Credit: NASA, ESA, CSA, Leah Hustak (STScI)*

Spotting the Doppler shift of a star's spectra was used to find Pegasi 51b, the first planet detected around a Sun-like star. This technique is called the radial velocity or "wobble" method. Astronomers split up the visible light emitted by a star into a rainbow. These spectra, and gaps between the normally smooth bands of light, help determine the elements that make up

the star. However, if there is a planet orbiting the star, it causes the star to wobble ever so slightly back and forth. This will, in turn, cause the lines within the spectra to shift ever so slightly towards the blue and red ends of the spectrum as the star wobbles slightly away and towards us. This is caused by the [blue and red shifts](#) of the planet's light. By carefully measuring the amount of shift in the star's spectra, astronomers can determine the size of the object pulling on the host star and if the companion is indeed a planet. By tracking the variation in this periodic shift of the spectra, they can also determine the time it takes the planet to orbit its parent star.

## Direct Imaging

Finally, exoplanets can be revealed by directly imaging them, such as this image of four planets found orbiting the star HR 8799! Space telescopes use instruments called coronagraphs to block the bright light from the host star and capture the dim light from planets. The Hubble Space Telescope has [captured images of giant planets orbiting a few nearby systems](#), and the James Webb Space Telescope [has only improved on these observations](#) by uncovering more details, such as the colors and spectra of exoplanet atmospheres, temperatures, detecting potential exomoons, and even scanning atmospheres for potential biosignatures!



*Image taken by the James Webb Space Telescope of four exoplanets orbiting HR 8799. Credit: NASA, ESA, CSA, STScI, Laurent Pueyo (STScI), William Balmer (JHU), Marshall Perrin (STScI)*

You can find more information and activities on [NASA's Exoplanets page](#), such as the [Eyes on Exoplanets](#) browser-based program, [The Exoplaneteers](#), and some of the [latest exoplanet news](#). Lastly, you can find more resources in our [News & Resources section](#), including a [clever demo](#) on how astronomers use the wobble method to detect planets!

The future of exoplanet discovery is only just beginning, promising rich rewards in humanity's understanding of our place in the Universe, where we are from, and if there is life elsewhere in our cosmos.

### Additional Skywatching Resources

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

This article is distributed by NASA Night Sky Network  
The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach.  
Visit [nightsky.jpl.nasa.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!

## Hubble Goes Hunting For Small Main-Belt Asteroids

[heic2407](#) — Science Release 18 April 2024



Astronomers recently used a trove of archived images taken by the NASA/ESA Hubble Space Telescope to visually snag a largely unseen population of smaller asteroids in their tracks. The treasure hunt required pursuing 37 000 Hubble images spanning 19 years. The payoff was finding 1701 asteroid trails, with 1031 of those asteroids uncatalogued. About 400 of these uncatalogued asteroids are about below a kilometre in size.

Volunteers from around the world known as ‘citizen scientists’ contributed to the identification of this asteroid bounty. Professional scientists combined the volunteers’ efforts with machine learning algorithms to identify the asteroids. This represents a new approach to finding asteroids in astronomical archives spanning decades, and it may be effectively applied to other datasets, say the researchers.

“We are getting deeper into seeing the smaller population of main-belt asteroids. We were surprised to see such a large number of candidate objects,” said lead author Pablo García Martín of the Autonomous University of Madrid, Spain. “There was some hint that this population existed, but now we are confirming it with a random asteroid population sample obtained using the whole Hubble archive. This is important for providing insights into the evolutionary models of our Solar System.”

The large, random sample offers new insights into the formation and evolution of the asteroid belt. Finding a lot of small asteroids favours the idea that they are fragments of larger asteroids that have collided and broken apart, like smashed pottery. This is a grinding-down process spanning billions of years.

An alternative theory for the existence of smaller fragments is that they formed that way billions of years ago. But there is no conceivable mechanism that would keep them from snowballing up to larger sizes as they agglomerate dust from the planet-forming circumstellar disc around our Sun. “Collisions would have a certain signature that we can use to test the current main belt population,” said co-author Bruno Merín of the European Space Astronomy Centre in Madrid, Spain.

Because of Hubble’s fast orbit around Earth, it can capture wandering asteroids through their telltale trails in the Hubble exposures. As viewed from an Earth-based telescope, an asteroid leaves a streak across the picture. Asteroids ‘photobomb’ Hubble exposures by appearing as unmistakable, curved trails in Hubble photographs.

As Hubble moves around Earth, it changes its point of view while observing an asteroid, which also moves along  
continued on next page

its own orbit. By knowing Hubble's position during the observation and measuring the curvature of the streaks, scientists can determine the distances to the asteroids and estimate the shapes of their orbits.

The asteroids snagged mostly dwell in the main belt, which lies between the orbits of Mars and Jupiter. Their brightness is measured by Hubble's sensitive cameras, and comparing their brightness to their distance allows for a size estimate. The faintest asteroids in the survey are roughly one forty-millionth the brightness of the faintest star that can be seen by the human eye.

"Asteroid positions change with time, and therefore you cannot find them just by entering coordinates, because at different times they might not be there," said Merín. "As astronomers we don't have time to go looking through all the asteroid images. So we got the idea to collaborate with more than 10 000 citizen-science volunteers to peruse the huge Hubble archives."

In 2019 an international group of astronomers launched the Hubble Asteroid Hunter, a citizen-science project to identify asteroids in archival Hubble data. The initiative was developed by researchers and engineers at the European Science and Technology Centre (ESTEC) and the European Space Astronomy Centre's science data centre (ESDC), in collaboration with the Zooniverse platform, the world's largest and most popular citizen-science platform, and Google.

A total of 11 482 citizen-science volunteers, who provided nearly two million identifications, were then given a training set for an automated algorithm to identify asteroids based on artificial intelligence. This pioneering approach may be effectively applied to other datasets.

The project will next explore the streaks of previously unknown asteroids to characterise their orbits and study their properties, such as rotation periods. Because most of these asteroid streaks were captured by Hubble many years ago, it is not possible to follow them up now to determine their orbits.

The findings are published in the journal [Astronomy and Astrophysics](#).

## More information

The Hubble Space Telescope is a project of international cooperation between ESA and NASA.

Image credit: NASA, ESA, P. G. Martín (Autonomous University of Madrid), J. DePasquale (STScI).  
Acknowledgment: A. Filippenko (University of California, Berkeley)

## Links

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

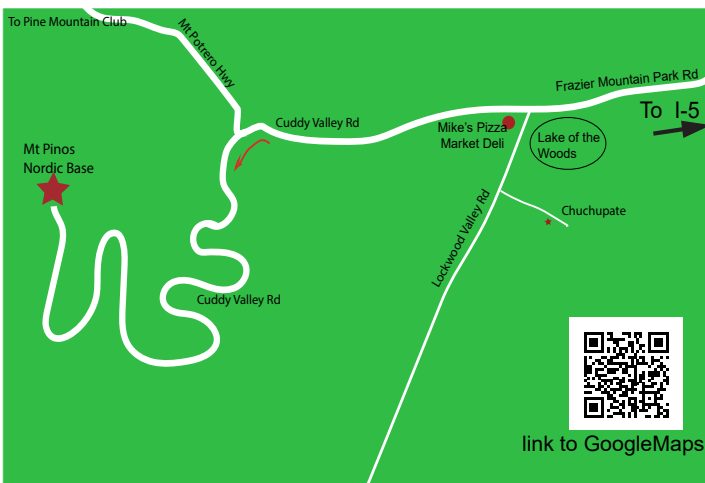
## Contacts

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

## 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.

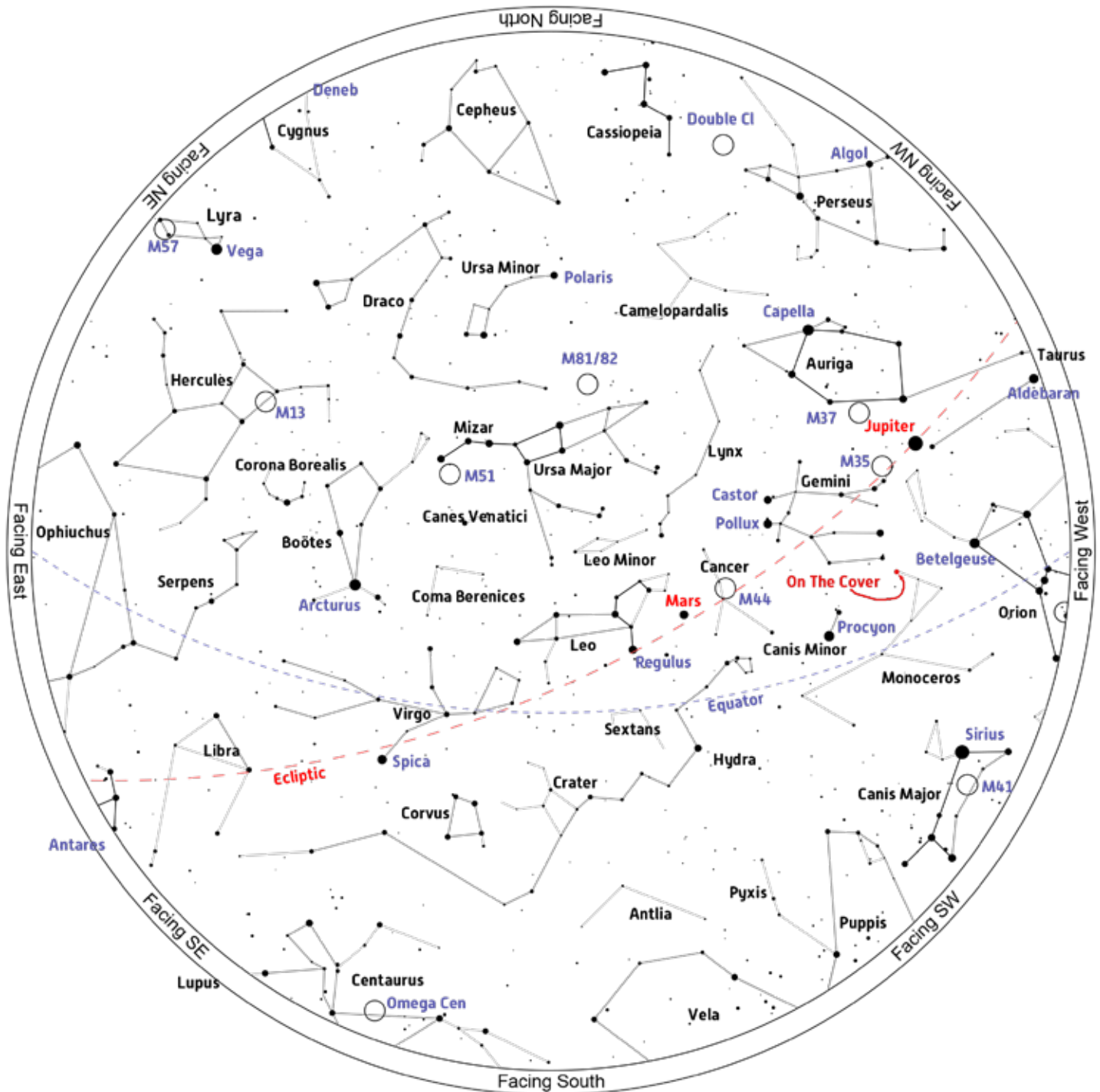
[RV7F+FF Frazier Park, California](#) (link to GoogleMaps)

**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 May 24, 20:00 (UTC -07:00)

Powered by: Heavens-Above.com

## Solar System Summary

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

### The Planets

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

**Venus** in the early morning moving normal motion in southern Pisces, while slowly dimming as the faster Venus pulls away from the slower Earth.

**Mars** starts the month in Cancer tip-toeing through the Beehive Cluster(M44) on the 4th/5th and passing into Leo on the 25th.

**Jupiter** continues it's normal motion heading east in Taurus, just south of the ecliptic. As the solar conjunction nears at the end of June Jupiter's mag dips as it's distance to Earth increases.

**Saturn** in the morning twilight, still moving normally in Pisces; by the end of the month rises almost 2 hours earlier.

**Uranus** continues moving normally at mag 5.8 in eastern Taurus. On the 17th it is in conjunction with the Sun

**Neptune** continues in the morning twilight moving in normal motion in southern Pisces at 7.9, and by the end of the month about 1.5° east of Saturn.

### Dwarf Planets

**134340 Pluto** spends the month in retrograde, still in western Capricorn, at mag 14.5.

**1 Ceres** spends the month moving into Cetes from Aquarius at mag 9.2,

**2 Pallas** is in normal motion passing through east central Delphinus at magnitude 10.4.

**3 Juno** continues its retrograde moves into Serpens Caput from Libra.

**4 Vesta** continues moving northwest in retrograde from Libra and then continuing into eastern Virgo. The first few of days of May Vesta will be in opposition and visible in binoculars, at mag 5.7, 2° NE of Rijnl Al Awwa.

## Moon Phases



First Qtr  
May 4

Full  
May 12

Third Qtr  
May 20

New  
May 26

## Sun and Moon Rise and Set\*

Date	Moonrise	Moonset	Sunrise	Sunset
5/1/2025	09:09	23:35	06:02	19:37
5/5/2025	13:32	02:35	05:58	19:41
5/10/2025	18:17	04:35	05:53	19:45
5/15/2025	23:07	07:37	05:49	19:49
5/20/2025	01:44	12:51	05:46	19:52
5/25/2025	04:16	18:46	05:43	19:56
5/30/2025	09:07	23:59	05:41	19:59

## Planet Data\*

May 1

	Rise	Transit	Set	Mag	Phase%
Mercury	05:05	11:19	17:33	0.06	60.0
Venus	04:08	10:14	16:19	-4.52	29.3
Mars	11:45	18:48	01:53	0.95	89.9
Jupiter	08:25	15:35	22:45	-2.01	99.6
Saturn	04:14	10:09	16:03	1.16	99.9

May 15

	Rise	Transit	Set	Mag	Phase%
Mercury	05:08	11:48	18:29	-0.70	82.2
Venus	03:46	09:58	16:10	-4.44	39.6
Mars	11:23	18:20	01:18	1.12	90.2
Jupiter	07:42	14:53	22:03	-1.96	99.8
Saturn	03:23	09:19	15:14	1.13	99.8

May 30

	Rise	Transit	Set	Mag	Phase%
Mercury	05:42	12:53	20:06	-2.29	99.9
Venus	03:27	09:50	16:13	-4.32	48.7
Mars	11:03	17:51	00:39	1.27	90.8
Jupiter	06:57	14:08	21:19	-1.92	99.9
Saturn	02:27	08:24	14:21	1.08	99.8

\*All time mentioned are local and approximate.

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

## Suggested Observing List

The list below contains objects that will be visible on the night of the AVAC Deep Sky Star Party or the Saturday nearest the New Moon, in this case May 24, 2025. The list is sorted by the transit time of the object.

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
IC405	Flaming Star Nebula	Neb	Aur	05h 16m 29s	+34° 21.3'		06:08	14:05	22:02
M79	NGC1904	Globular	Lep	05h 24m 11s	-24° 31.4'	8.5	09:24	14:13	19:02
M38	Starfish Cluster	Open	Aur	05h 28m 40s	+35° 50.8'	7.0	06:13	14:17	22:22
M1	Crab Nebula	SNR	Tau	05h 34m 32s	+22° 00.8'	8.4	07:15	14:23	21:32
M42	Great Orion Nebula	Open+D Neb	Ori	05h 35m 16s	-05° 23.4'	4.0	08:36	14:24	20:12
M43	De Mairan's Nebula	D Neb	Ori	05h 35m 31s	-05° 16.0'	9.0	08:36	14:24	20:12
M36	Pinwheel Cluster	Open	Aur	05h 36m 18s	+34° 08.3'	6.5	06:29	14:25	22:21
M78	NGC2068	D Neb	Ori	05h 46m 45s	+00° 04.8'	8.0	08:32	14:35	20:38
M37	Salt-and-pepper Cluster	Open	Aur	05h 52m 18s	+32° 33.2'	6.0	06:52	14:41	22:30
M35	NGC2168	Open	Gem	06h 09m 00s	+24° 21.0'	5.5	07:41	14:58	22:14
M41	Little Beehive	Open	CMa	06h 46m 01s	-20° 45.3'	5.0	10:33	15:35	20:37
M50	Heart-shaped Cluster	Open	Mon	07h 02m 42s	-08° 23.0'	7.0	10:12	15:51	21:31
M47	NGC2422	Open	Pup	07h 36m 35s	-14° 29.0'	4.5	11:04	16:25	21:47
M46	NGC2437	Open	Pup	07h 41m 46s	-14° 48.6'	6.5	11:10	16:30	21:51
M93	NGC2447	Open	Pup	07h 44m 30s	-23° 51.4'	6.5	11:42	16:33	21:25
M48	NGC2548	Open	Hya	08h 13m 43s	-05° 45.0'	5.5	11:16	17:02	22:49
M44	Beehive Cluster	Open	Cnc	08h 40m 24s	+19° 40.0'	4.0	10:28	17:29	00:30
M67	King Cobra	Open	Cnc	08h 51m 18s	+11° 48.0'	7.5	11:04	17:40	00:16
M81	Bode's Galaxy	Galaxy	UMa	09h 55m 33s	+69° 03.9'	7.8	Circ	18:44	Circ
M82	Cigar Galaxy	Galaxy	UMa	09h 55m 53s	+69° 40.8'	9.2	Circ	18:45	Circ
M95	NGC3351	Galaxy	Leo	10h 43m 58s	+11° 42.2'	10.6	12:57	19:33	02:09
M96	NGC3368	Galaxy	Leo	10h 46m 46s	+11° 49.2'	10.1	12:59	19:35	02:12
M105	NGC3379	Galaxy	Leo	10h 47m 50s	+12° 34.9'	10.5	12:58	19:36	02:15
M108	NGC3556	Galaxy	UMa	11h 11m 31s	+55° 40.4'	10.6	Circ	20:00	Circ
M97	Owl Nebula	P Neb	UMa	11h 14m 48s	+55° 01.1'	12.0	Circ	20:03	Circ
M65	Leo Triplet	Galaxy	Leo	11h 18m 56s	+13° 05.5'	10.1	13:27	20:08	02:48
M66	Leo Triplet	Galaxy	Leo	11h 20m 15s	+12° 59.4'	9.7	13:29	20:09	02:49
M109	NGC3992,	Galaxy	UMa	11h 57m 36s	+53° 22.4'	10.6	09:55	20:46	07:37
M98	NGC4192	Galaxy	Com	12h 13m 48s	+14° 54.0'	10.9	14:17	21:02	03:48
M99	Pinwheel Galaxy	Galaxy	Com	12h 18m 50s	+14° 25.0'	10.4	14:23	21:07	03:52
M106	NGC4258	Galaxy	CVn	12h 18m 58s	+47° 18.2'	9.1	11:46	21:08	06:29
M61	Swelling Spiral	Galaxy	Vir	12h 21m 55s	+04° 28.3'	10.1	14:55	21:11	03:26
M40	Winnecke 4	DbI+Asterism	UMa	12h 22m 12s	+58° 05.0'	8.7	Circ	21:11	Circ
M100	Mirror of M99	Galaxy	Com	12h 22m 55s	+15° 49.3'	10.1	14:23	21:12	04:00
M84	NGC4374	Galaxy	Vir	12h 25m 04s	+12° 53.2'	10.2	14:34	21:14	03:53
M85	NGC4382	Galaxy	Com	12h 25m 24s	+18° 11.4'	10.0	14:18	21:14	04:10

# Desert Sky Observer

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May 2025

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M86	NGC4406	Galaxy	Vir	12h 26m 12s	+12° 56.7'	9.9	14:35	21:15	03:54
M49	NGC4472	Galaxy	Vir	12h 29m 47s	+08° 00.0'	9.3	14:53	21:18	03:44
M87	Smoking Gun, Virgo A	Galaxy	Vir	12h 30m 49s	+12° 23.4'	9.6	14:41	21:19	03:57
M88	NGC4501	Galaxy	Com	12h 31m 59s	+14° 25.2'	10.2	14:37	21:21	04:05
M91	Missing Messier Object	Galaxy	Com	12h 35m 27s	+14° 29.7'	10.9	14:40	21:24	04:08
M89	NGC4552	Galaxy	Vir	12h 35m 40s	+12° 33.3'	10.9	14:46	21:24	04:03
M90	NGC4569	Galaxy	Vir	12h 36m 50s	+13° 09.7'	10.2	14:45	21:25	04:06
M58	NGC4579	Galaxy	Vir	12h 37m 44s	+11° 49.1'	10.4	14:50	21:26	04:03
M68	NGC4590	Globular	Hya	12h 39m 28s	-26° 44.5'	9.0	16:47	21:28	02:09
M104	Sombrero Galaxy	Galaxy	Vir	12h 39m 59s	-11° 37.3'	9.2	15:59	21:29	02:59
M59	NGC4621	Galaxy	Vir	12h 42m 02s	+11° 38.7'	10.7	14:55	21:31	04:06
M60	NGC4649	Galaxy	Vir	12h 43m 40s	+11° 33.1'	9.8	14:57	21:32	04:08
M94	Croc's Eye Galaxy	Galaxy	CVn	12h 50m 53s	+41° 07.1'	8.9	13:05	21:40	06:14
M64	Black Eye Galaxy	Galaxy	Com	12h 56m 44s	+21° 41.0'	9.3	14:38	21:45	04:53
M53	NGC5024	Globular	Com	13h 12m 55s	+18° 10.1'	8.5	15:06	22:02	04:57
M63	Sunflower Galaxy	Galaxy	CVn	13h 15m 49s	+42° 01.7'	9.3	13:24	22:04	06:44
NGC5139	Omega Centauri	Globular	Cen	13h 26m 48s	-47° 29.0'	3.6	19:26	22:15	01:04
NGC5169		Galaxy	CVn	13h 28m 10s	+46° 40.3'	14.0	13:01	22:17	07:33
NGC5204		Galaxy	UMa	13h 29m 36s	+58° 25.1'	11.3	Circ	22:18	Circ
M51	Question Mark Galaxy	Galaxy	CVn	13h 29m 52s	+47° 11.7'	8.9	12:58	22:19	07:39
Arp85	M51B	Galaxy	CVn	13h 29m 58s	+47° 16.0'	9.6	12:57	22:19	07:40
NGC5182		Galaxy	Hya	13h 30m 41s	-28° 09.0'	13.0	17:43	22:19	02:55
NGC5214		Galaxy	CVn	13h 32m 49s	+41° 52.3'	14.0	13:43	22:21	07:00
M83	Southern Pinwheel Galaxy	Galaxy	Hya	13h 37m 00s	-29° 51.8'	8.0	17:56	22:26	02:55
HR5144	SAO82942	Triple	Boo	13h 40m 40s	+19° 57.3'	5.8	15:28	22:29	05:31
NGC5283		Galaxy	Dra	13h 41m 06s	+67° 40.3'	14.0	Circ	22:30	Circ
M3	NGC5272	Globular	CVn	13h 42m 11s	+28° 22.5'	7.0	14:59	22:31	06:02
NGC5286	C84	Globular	Cen	13h 46m 24s	-51° 22.0'	7.6	20:28	22:35	00:42
NGC5292		Galaxy	Cen	13h 47m 40s	-30° 56.4'	14.0	18:11	22:36	03:01
NGC5356		Galaxy	Vir	13h 54m 59s	+05° 20.0'	14.0	16:26	22:44	05:01
NGC5363		Galaxy	Vir	13h 56m 07s	+05° 15.2'	10.2	16:27	22:45	05:02
NGC5447	III-787	Neb	UMa	14h 02m 29s	+54° 16.3'		11:28	22:51	10:14
M101	Pinwheel Galaxy	Galaxy	UMa	14h 03m 13s	+54° 20.9'	8.2	11:25	22:52	10:19
NGC5461	III-788	Neb	UMa	14h 03m 42s	+54° 19.0'		11:27	22:52	10:18
NGC5485		Galaxy	UMa	14h 07m 11s	+55° 00.0'	11.5	Circ	22:56	Circ
NGC5460		Open	Cen	14h 07m 27s	-48° 20.6'	5.6	20:15	22:56	01:37
NGC5500		Galaxy	Boo	14h 10m 15s	+48° 32.7'	14.0	13:24	22:59	08:33
IC991		Galaxy	Vir	14h 17m 48s	-13° 52.3'	13.0	17:43	23:06	04:30
HR5362	HD125383	Dbl	Lup	14h 20m 10s	-43° 03.5'	5.6	19:46	23:09	02:32

# Desert Sky Observer

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May 2025

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
IC4406	Retina Nebula	P Neb	Lup	14h 22m 26s	-44° 09.0'	11.0	19:56	23:11	02:26
HR5409	Phi Vir, 105 Vir	Triple	Vir	14h 28m 12s	-02° 13.6'	4.8	17:20	23:17	05:13
NGC5669		Galaxy	Boo	14h 32m 44s	+09° 53.4'	12.0	16:51	23:21	05:52
NGC5689		Galaxy	Boo	14h 35m 30s	+48° 44.5'	11.9	13:48	23:24	09:01
M102	Spindle Galaxy (duplicate of M101?)	Galaxy	Dra	15h 06m 30s	+55° 45.7'	10.8	Circ	23:55	Circ
NGC5875		Galaxy	Boo	15h 09m 13s	+52° 31.6'	13.0	13:26	23:58	10:30
NGC5907	Splinter Galaxy	Galaxy	Dra	15h 15m 54s	+56° 19.7'	11.4	Circ	00:05	Circ
NGC5882		P Neb	Lup	15h 16m 50s	-45° 38.9'	11.0	21:01	00:05	03:10
NGC5897		Globular	Lib	15h 17m 24s	-21° 00.6'	8.6	19:05	00:06	05:07
M5	NGC5904	Globular	Ser	15h 18m 33s	+02° 04.9'	7.0	17:59	00:07	06:16
Barnard228		DkNeb	Lup	15h 44m 00s	-34° 30.0'		20:23	00:33	04:42
IC4593	White Eyed Pea	P Neb	Her	16h 11m 44s	+12° 04.3'	11.0	18:23	01:00	07:37
IC4592	Jabbah	Neb	Sco	16h 11m 59s	-19° 27.4'		19:54	01:01	06:07
M80	NGC6093	Globular	Sco	16h 17m 03s	-22° 58.5'	8.5	20:11	01:06	06:00
IC4601		Neb	Sco	16h 20m 18s	-20° 04.9'		20:05	01:09	06:13
Abell38		P Neb	Sco	16h 23m 17s	-31° 44.9'	11.7	20:50	01:12	05:34
M4	Cat's Eye,	Globular	Sco	16h 23m 35s	-26° 31.5'	7.5	20:30	01:12	05:54
IC4603	Rho Ophiuchi Complex [1]	Neb	Oph	16h 25m 24s	-24° 28.0'		20:25	01:14	06:03
IC4604	Rho Ophiuchi Complex [2]	Neb	Oph	16h 25m 33s	-23° 26.5'		20:21	01:14	06:07
NGC6124	C75	Open	Sco	16h 25m 36s	-40° 40.0'	5.8	21:36	01:14	04:52
Abell39		P Neb	Her	16h 27m 33s	+27° 54.5'	12.9	17:46	01:16	08:46
IC4605		Neb	Sco	16h 30m 12s	-25° 06.8'		20:32	01:19	06:06
NGC6153		P Neb	Sco	16h 31m 31s	-40° 15.2'	12.0	21:40	01:20	05:00
NGC6181		Galaxy	Her	16h 32m 21s	+19° 49.5'	11.9	18:20	01:21	08:22
NGC6171		Globular	Oph	16h 32m 32s	-13° 03.1'	8.1	19:55	01:21	06:47
NGC6178		Open	Sco	16h 35m 47s	-45° 38.6'	7.2	22:20	01:24	04:29
NGC6193	C82	Open	Ara	16h 41m 18s	-48° 46.0'	5.2	22:53	01:30	04:07
M13	Great Hercules Cluster	Globular	Her	16h 41m 41s	+36° 27.5'	7.0	17:23	01:30	09:38
NGC6210	Turtle Planetary Nebula	P Neb	Her	16h 44m 30s	+23° 48.0'	9.0	18:19	01:33	08:48
NGC6204		Open	Ara	16h 46m 09s	-47° 01.0'	8.2	22:42	01:35	04:28
M12	Gumball Globular	Globular	Oph	16h 47m 14s	-01° 56.8'	8.0	19:39	01:36	07:33
NGC6231	Table of Scorpius	Open	Sco	16h 54m 00s	-41° 48.0'	2.6	22:12	01:43	05:14
IC4628	Prawn Nebula	Neb	Sco	16h 56m 58s	-40° 27.3'		22:07	01:46	05:25
NGC6254		Globular	Oph	16h 57m 09s	-04° 05.9'	6.6	19:54	01:46	07:37
Barnard47	B47	DkNeb	Oph	16h 59m 42s	-22° 38.0'		20:53	01:48	06:44
M62	Flickering Globular	Globular	Oph	17h 01m 13s	-30° 06.7'	8.0	21:21	01:50	06:18
M19	NGC6273	Globular	Oph	17h 02m 38s	-26° 16.0'	8.5	21:08	01:51	06:34
M92	NGC6341	Globular	Her	17h 17m 07s	+43° 08.1'	7.5	17:18	02:06	10:53
M9	NGC6333	Globular	Oph	17h 19m 12s	-18° 31.0'	9.0	20:59	02:08	07:17

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ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC6357	Lobster Nebula	Neb	Sco	17h 24m 43s	-34° 12.1'		22:02	02:13	06:24
NGC6388		Globular	Sco	17h 36m 17s	-44° 44.1'	6.9	23:14	02:25	05:36
M14	NGC6402	Globular	Oph	17h 37m 36s	-03° 14.7'	9.5	20:33	02:26	08:20
M6	Butterfly Cluster	Open	Sco	17h 40m 20s	-32° 15.2'	4.5	22:09	02:29	06:49
IC4665		Open	Oph	17h 46m 30s	+05° 39.0'	4.2	20:17	02:35	08:54
NGC6445	Crescent Nebula	P Neb	Sgr	17h 49m 15s	-20° 00.6'	13.0	21:34	02:38	07:42
NGC6503		Galaxy	Dra	17h 49m 27s	+70° 08.6'	10.2	Circ	02:38	Circ
NGC6441		Globular	Sco	17h 50m 13s	-37° 03.0'	7.4	22:41	02:39	06:36
M7	Ptolemy's Cluster	Open	Sco	17h 53m 51s	-34° 47.6'	3.5	22:34	02:42	06:51
IC4670		Neb	Sgr	17h 55m 07s	-21° 44.6'		21:45	02:44	07:42
NGC6501		Galaxy	Her	17h 56m 04s	+18° 22.3'	12.3	19:48	02:45	09:41
M23	NGC6494	Open	Sgr	17h 57m 04s	-18° 59.1'	6.0	21:38	02:46	07:53
NGC6543	Cat Eye Nebula	P Neb	Dra	17h 58m 36s	+66° 38.0'	8.1	Circ	02:47	Circ
NGC6496		Globular	Sco	17h 59m 04s	-44° 16.0'	9.2	23:33	02:48	06:02
M20	Trifid Nebula	Open+D Neb	Sgr	18h 02m 42s	-22° 58.2'	5.0	21:57	02:51	07:46
M8	Lagoon Nebula	Open+D Neb	Sgr	18h 03m 41s	-24° 22.7'	5.0	22:03	02:52	07:42
M21	NGC6531	Open	Sgr	18h 04m 13s	-22° 29.3'	7.0	21:57	02:53	07:49
NGC6530		Open	Sgr	18h 04m 31s	-24° 21.5'	4.6	22:03	02:53	07:43
NGC6528		Globular	Sgr	18h 04m 50s	-30° 03.3'	9.5	22:25	02:53	07:22
IC4684		Neb	Sgr	18h 09m 08s	-23° 26.1'		22:05	02:58	07:51
IC4685		Neb	Sgr	18h 09m 18s	-23° 59.2'		22:07	02:58	07:49
M24	Small Sagittarius Star Cloud	Open	Sgr	18h 18m 26s	-18° 24.3'	4.5	21:58	03:07	08:17
M16	Eagle Nebula	Open+D Neb	Ser	18h 18m 48s	-13° 48.3'	6.5	21:44	03:07	08:31
Barnard308		DkNeb	Sgr	18h 19m 08s	-22° 14.0'		22:11	03:08	08:05
M18	Black Swan	Open	Sgr	18h 19m 58s	-17° 06.1'	8.0	21:55	03:09	08:22
M17	Swan Nebula	Open+D Neb	Sgr	18h 20m 47s	-16° 10.3'	7.0	21:53	03:09	08:26
M28		Globular	Sgr	18h 24m 33s	-24° 52.1'	8.5	22:25	03:13	08:01
M25		Open	Sgr	18h 31m 42s	-19° 07.0'	6.5	22:13	03:20	08:28
M11	Wild Duck Cluster	Open	Sct	18h 51m 05s	-06° 16.1'	7.0	21:54	03:40	09:25

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

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