

Volume 44.10

October 2024

Desert Sky Observer

Antelope Valley Astronomy Club



Desert Sky Observer

www.avastronomyclub.org

October 2024

Upcoming Events

October 5: DSSP at Red Cliffs
October 11: Annual Business Meeting
October 11: Public Star Party@ SAGE (after business meeting/election)
October 12: Tehachapi Airport Star Party 6:30 - 9:30pm
October 26: Spooky Science @PDW Center 2:30 -4:30 pm
October 26: Moonwalk @ PDW starts at 6:30pm



AVAC Calendar

Every clear night: Personal Star Party

November 1: Star Party @ College of the Canyons 6:00 9:30 pm
November 2: DSSP at Red Cliffs
November 5: Election Day -- VOTE!
November 8: Club Meeting
November 16: Moonwalk @ PDW starts at 5:30pm
December 7: Club Christmas Party @ Gino's 6:00 - 9:30 pm

Board Members

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

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

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

Equipment & Library:
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Club Historian: vacant
history@avastronomyclub.org

Webmaster: Steve Trotta (661) 269-5428
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Night Sky Coordinator:
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Astronomical League Coordinator:
Phil Wriedt (661) 917-4874
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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

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President's Message

By Phil Wriedt

Hi There!

October 5th will start the month off with a Dark Sky Star Party at Red Cliffs Natural Area. Be sure to get there before sunset at 6:30 pm to setup. There is a vault toilet. The last time I was there the toilet paper was rolling around on the floor, so bring your own. Bring your own water and munchies too, no campfires. The same goes for the DSSP on November 2nd.

Our meeting on October 11th will be our mandatory yearly business meeting. We **must** hold a election of Officers for 2025. There is a minimum quorum at the meeting for this to happen. Please come and vote. No one is going to twist your arm, and make you a officer. The entire Board has agreed to continue in their present positions, if the membership agrees, hence, the election. If you wish to nominate someone, with their permission, or if you want to nominate yourself, contact a board member by the October meeting. Because of the planetarium construction, we will be holding the meeting *al fresco* (so we can watch the scopes) and have the Parking Lot Star Party after the election.

On the 12th we will be helping at the Tehachapi Airport Star Party. In the public announcement it says start at 5:30 pm and later on its says 6:45 pm. Get there early, 'cause there is nothing like 300 people looking over your shoulder, while you are trying to assemble your scope. Same thing goes for the College of the Canyon Star Party on Friday, November 1st

Our last Moonwalk on the 21st of September had 80 members of the public and 6 telescopes and 6 club members! Lets do it again on the 26th. Come on out and enjoy a night under the stars, bring your scope, meet the public.

I'm starting to sound like *Chicken Little*, but watch out for ***T Coronae Borealis***. This is a recurrent nova in Corona Borealis. It's a binary variable-star normally at mag. 10. The last time it went nova was February 9, 1946. It's due again between March and September of this year. I'm thinking it already happened and no one noticed.

Stay Cool and Keep Looking Up, Phil

On The Cover

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

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

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

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

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

From the Secretary

By Rose Moore

Members: We have a few events this month.

We have a dark sky star party on Saturday October 5th. Weather permitting. This is being held at Red Cliffs recreation area on the 14, just before Red Rock Canyon. Arrival time is any time in the afternoon, and members need to leave by around 9am Sunday morning. We have obtained the permit for the event. We will send out an email regarding the event and directions a few days prior.

On Friday October 11th, we have our club annual Business meeting. We need to nominate and elect the AVAC Board members for the next year. You may nominate any member, or even yourself, to any of the positions. This is also a good time to bring up any questions, concerns, or suggestions for the club. Please attend! The SAGE Planetarium is scheduled to have the redo starting this month, so the meeting may be inside the SAGE Academy school, or even outside. Stay tuned, an email regarding the elections will be coming!

Also on Friday October 11th, there will be a public star party after the business meeting. We will need members with telescopes to help support this event!

The Tehachapi Airport Star Party will be held on Saturday October 12th, from 6:30-10pm. We will need members with telescopes to help at this event! This event is being hosted by Lauren and Dale Hawkins, NASA Solar System Ambassadors. This is usually a heavily attended event. More information via email will be coming with directions.

On Saturday October 26th, Jeremy will be first conducting his 'Spooky Science' event at the Prime Desert Clifford Center. This starts at 2:30pm and is for kids and adults, free and open to the public. Later that day, there will be a Prime Desert Moon Walk with Jeremy starting at 6:30pm, weather permitting. We will need members with telescopes for this event.

College of the Canyons, Canyon Campus, will host their fall star party and science event on Friday November 1st starting at 6:00pm to 9:30pm. Their speaker this year will be Dr. Jason Wright, Professor of Astronomy and Astrophysics at Penn State. We will be set up in the same area as last year, and members attending will need to arrive a bit earlier than usual to secure a good spot. Weather permitting. There will be food available for purchase, and the College usually offers pizza inside the science building for those helping at the event. More info coming!

We are starting sign ups for our club Christmas Party! The party will be held on Saturday December 7th, from 6:00 to 9:30pm. There will be a buffet dinner: chicken parmigiana, penne pasta primavera, baked lasagna with meat sauce, garden salad, garlic bread; ice tea, lemonade, coffee, and soft drinks. The cost will be \$35 per member and each guest(s), \$17.50 per child 12 and under. The dinner will be held again at Gino's Ristorante, Lancaster Marketplace, 44960 Valley Central Wy, Lancaster, 93536. You may pay at the October or November meeting, or pay via PayPal on a link that will be set up by Steve, on our website. We need to give Gino's a head count by the last week in November. You can donate a gift, related to astronomy or not, for the raffle. There will be a grand prize. Further info to follow.

The Europa Clipper space mission is scheduled for launch on Oct. 10th. Check your TV schedule, or any of the coverage on YouTube on channels such as SpaceFlightNow, or The Launch Pad.

Busy month! Please consider helping at one of the events!

Rose

October's Night Sky Notes: Catch Andromeda Rising!

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

If you're thinking of a galaxy, the image in your head is probably the Andromeda Galaxy! Studies of this massive neighboring galaxy, also called M31, have played an incredibly important role in shaping modern astronomy. As a bonus for stargazers, the Andromeda Galaxy is also a beautiful sight.



Spot the Andromeda Galaxy! M31's more common name comes from its parent constellation, which becomes prominent as autumn arrives in the Northern Hemisphere. Surprising amounts of detail can be observed with unaided eyes when seen from dark sky sites. Hints of it can even be made out from light polluted areas. Use the Great Square of Pegasus or the Cassiopeia constellation as guides to find it. Credit: Stellarium Web

Have you heard that all the stars you see at night are part of our Milky Way galaxy? While that is mostly true, one star-like object located near the border between the constellations of Andromeda and Cassiopeia appears fuzzy to unaided eyes. That's because it's not a star, but the Andromeda Galaxy, its trillion stars appearing to our eyes as a 3.4 magnitude patch of haze. Why so dim? Distance! It's outside our galaxy, around 2.5 million light years distant - so far away that the light you see left M31's stars when our earliest ancestors figured out stone tools. Binoculars show more detail: M31's bright core stands out, along with a bit of its wispy, saucer-shaped disc. Telescopes bring out greater detail but often can't view the entire galaxy at once. Depending on the quality of your skies and your magnification, you may be able to make out individual globular clusters, structure, and at least two of its orbiting dwarf galaxies: M110 and M32. Light pollution and thin clouds, smoke, or haze will severely hamper observing fainter detail, as they will for any "faint fuzzy." Surprisingly, persistent stargazers can still spot M31's core from areas of moderate light pollution as long as skies are otherwise clear.

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!



Generated version of the Andromeda Galaxy and its companion galaxies M32 and M110. Credit: Stellarium Web

Modern astronomy was greatly [shaped by studies of the Andromeda Galaxy](#). A hundred years ago, the idea that there were other galaxies beside our own was not widely accepted, and so M31 was called the “Andromeda Nebula.” Increasingly detailed observations of M31 caused astronomers to question its place in our universe – was M31 its own “island universe,” and not part of our Milky Way? Harlow Shapley and Heber Curtis engaged in the “Great Debate” of 1920 over its nature. Curtis argued forcefully from his observations of dimmer than expected nova, dust lanes, and other oddities that the “nebula” was in fact an entirely different galaxy from our own. A few years later, Edwin Hubble, building on Henrietta Leavitt’s work on Cepheid variable stars as a “standard candle” for distance measurement, concluded that M31 was indeed another galaxy after he observed Cepheids in photos of Andromeda, and estimated M31’s distance as far outside our galaxy’s boundaries. And so, the Andromeda Nebula became known as the Andromeda Galaxy.



While M31’s disc appears larger than you might expect (about 3 Moon widths wide), its “galactic halo” of scattered stars and gas is much, much larger – as you can see here. In fact, it is suspected that its halo is so huge that it may already mingle with our Milky Way’s own halo, which makes sense since our galaxies are expected to merge sometime in the next few billion years! The dots are quasars, objects located behind the halo, which are the very energetic cores of distant galaxies powered by black holes at their center. The Hubble team studied the composition of M31’s halo by measuring how the quasars’ light was absorbed by the halo’s material.

Credits: NASA, ESA, and E. Wheatley (STScI)

These discoveries inspire astronomers to this day, who continue to observe M31 and many other galaxies for hints about the nature of our universe. One of the Hubble Space Telescope’s longestrunning observing campaigns was a study of M31: the Panchromatic Hubble Andromeda Treasury (PHAT). Dig into NASA’s latest discoveries about the Andromeda Galaxy, on their [Messier 31](#) page.

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!

Space News

News from around the Net

How A Nearby Supernova Left Its Mark On Earth Life

When a massive star explodes as a supernova, it does more than release an extraordinary amount of energy. Supernovae explosions are responsible for creating some of the heavy elements, including iron, which is blasted out into space by the explosion. On Earth, there are two accumulations of the iron isotope ^{60}Fe in sea-floor sediments that scientists trace back to about 2 or 3 million years ago and to about 5 to 6 million years ago. . . (continued at <https://phys.org/news/2024-09-nearby-supernova-left-earth-life.html>)



NASA Completes Spacecraft To Transport, Support Roman Space Telescope

The spacecraft bus that will deliver NASA's Nancy Grace Roman Space Telescope to its orbit and enable it to function once there is now complete after years of construction, installation, and testing. Now that the spacecraft is assembled, engineers will begin working to integrate the observatory's other major components, including the science instruments and the telescope itself. "They call it a spacecraft bus for a reason—it gets the telescope to where it needs to be in space," said Jackie Townsend, the Roman deputy project manager at NASA's Goddard Space Flight Center in Greenbelt, Maryland. "But it's really more like an RV. . . (continued at <https://phys.org/news/2024-09-nasa-spacecraft-roman-space-telescope.html>)



Astronomers Are Getting Better At Detecting Asteroids Before They Hit Earth—And It Could Save Us From Catastrophe

On September 4 2024, astronomers discovered an asteroid, 1 meter in diameter, heading towards Earth. The space rock would burn up harmlessly in the atmosphere near the Philippines later that day, officials announced. Nevertheless, it produced a spectacular fireball that was shared in videos posted on social media. The object, known as RW1, was only the ninth asteroid to be spotted before impact. But what of much bigger, more dangerous asteroids? Would our warning systems be able to detect all the asteroids that are capable of threatening us on the ground? . . .(continued at https://phys.org/news/2024-09-astronomers-asteroids-earth-catastrophe.html#google_vignette)



Space Travel Weakens The Heart, New Study Finds

It's no secret that spending extended periods in space takes a toll on the human body. For years, NASA and other space agencies have been researching the effects of microgravity on humans, animals, and plants aboard the International Space Station (ISS). So far, the research has shown that being in space for long periods leads to muscle atrophy, bone density loss, changes in vision, gene expression, and psychological issues. Knowing these effects and how to mitigate them is essential given our future space exploration goals, which include long-duration missions to the Moon, Mars, and beyond. . . (continued at <https://www.universetoday.com/168700/space-travel-weakens-the-heart-new-study-finds/#more-168700>)



Will Comet A3 Tsuchinshan-Atlas Shine Brighter Than Expected?

Now is the time to catch Comet A3-Tsuchinshan-ATLAS at dawn. The window is now open. If skies are clear, set your alarm heading into this weekend to see Comet C/2023 A3 Tsuchinshan-ATLAS at dawn. We're already seeing great views of the comet this week from southern observers and astronauts aboard the International Space Station. The visibility window is now even creeping up to the southern tier latitudes of the contiguous United States (CONUS). If fortune favors us, the comet could hit an easy naked eye magnitude +2 by next week, and forward scattering could even boost this into negative magnitudes... the rare term 'daytime comet' is even getting kicked around a bit in cometwatching circles. . . (continued at <https://www.universetoday.com/168680/will-comet-a3-tsuchinshan-atlas-shine-brighter-than-expected/#more-168680>)



Space News

News from around the Net

The Decade-Long Hunt For Arrokoth, A Strange New World In The Outer Solar System

A little over nine years ago, a plucky robot with a huge radio dish for a head and a heart made of radioactive plutonium completed one of the most daring space missions conceived of to date. After hibernating through nearly a decade of interplanetary travel, the probe, earnestly dubbed New Horizons by its dedicated creators, woke up as it neared the dwarf planet Pluto. By design it was then beelining towards its destinations at over 50,000 miles per hour, far too fast to slow . . . (continued at <https://skyandtelescope.org/astronomy-news/the-decade-long-hunt-for-arrokoth-a-strange-new-world-in-the-outer-solar-system/>)



Tiny Glass Beads Reveal Signs Of Recent Volcanism On The Moon

The Moon rocks returned by Apollo astronauts gave us our first hands-on evidence of lunar volcanism, showing it to be ancient — dating back to at least 3.1 billion years ago. Yet there have been claims of more recent activity, based on orbital sensing and ground-based imaging, and now new evidence suggests those claims may have been on the right track: The Moon might have had active volcanoes up until relatively recently. . . . (continued at <https://skyandtelescope.org/astronomy-news/tiny-glass-beads-reveal-signs-of-recent-volcanism-on-the-moon/>)



Earth Gets A New Mini Moon This Weekend

Earth is about to receive a visitor from outer space. No little green men, alas, but a tiny and temporary moon will grace our skies for two months, beginning this weekend. Astronomers Carlos de la Fuente Marcos and Raúl de la Fuente Marcos from Ciudad Universitaria in Madrid were the ones to discover the mini-moon, dubbed 2024 PT5, which spans just 33 feet (10 meters). The pair of researchers found the moon buried in data from the intimidatingly named Asteroid Terrestrial-impact Last Alert System (ATLAS), using a dedicated telescope at Sutherland Observing Station in South Africa. . . . (continued at <https://www.astronomy.com/science/earth-gets-a-new-mini-moon-this-weekend/>)



New Type Of Kevlar Heading To ISS In October For Space Debris Protection Tests

We were able to reduce the weight by as much as 40% and still have it pass the tests for orbital debris needs. A next-generation space debris protection material is readying for a test trip to the International Space Station. The material, a sibling of the space-blanket polymer Kevlar, has been developed by chemical giant DuPont and tested by NASA at its White Sands Test Facility (WTSF) in New Mexico. The tests showed that the new Kevlar “EXO” material provides better protection against space debris impacts while being significantly lighter than conventional Kevlar. . . . (continued at <https://www.space.com/space-debris-protection-material-kevlar-exo-iss-test>)



Cubesats, The Tiniest Of Satellites, Are Changing The Way We Explore The Solar System

Most CubeSats weigh less than a bowling ball, and some are small enough to hold in your hand. But the impact these instruments are having on space exploration is gigantic. CubeSats – miniature, agile and cheap satellites – are revolutionizing how scientists study the cosmos. A standard-size CubeSat is tiny, about 4 pounds (roughly 2 kilograms). Some are larger, maybe four times the standard size, but others are no more than a pound. . . . (continued at <https://www.astronomy.com/space-exploration/cubesats-the-tiniest-of-satellites-are-changing-the-way-we-explore-the-solar-system/>)



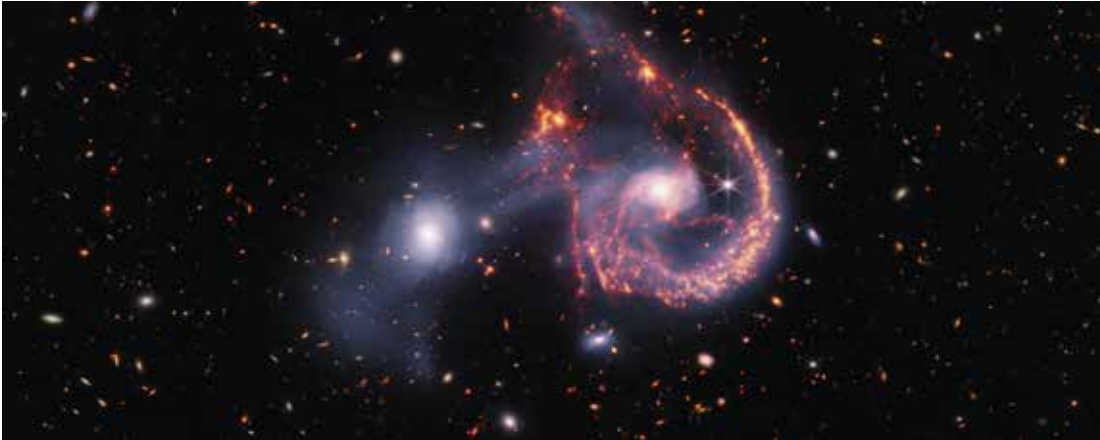
Early Galaxies May Be Smaller Than Initially Thought

The cosmos may not be broken after all. Soon after the James Webb Space Telescope (JWST) started its science mission in 2022, astronomers discovered a half-dozen galaxies near the edge of the universe that appeared far more massive than anyone expected (see “Too big, too soon” in the September 2023 Astronomy). Prevailing theory held that the first galaxies were relatively small clouds of gas, stars, and dust that slowly grew into the majestic spirals and unassuming . . . (continued at <https://www.astronomy.com/science/early-galaxies-may-be-smaller-than-initially-thought/>)



Webb Provides Another Look Into Galactic Collisions

18 September 2024 [weic2423](#) — [Photo Release](#)



Arp 107 composite image (NIRCam + MIRI) [PR Image weic2423a](#)

An interaction between an elliptical galaxy and a larger spiral galaxy, collectively known as Arp 107, seems to have given the spiral a happier outlook thanks to the two bright ‘eyes’ and the wide semicircular ‘smile’ that have resulted. This image is a composite, combining observations from Webb’s MIRI (Mid-InfraRed Instrument) and NIRCam (Near-InfraRed Camera).

[NIRCam](#) highlights the stars within both galaxies and reveals the connection between them: a transparent, white bridge of stars pulled from both galaxies during their passage. [MIRI](#) data, represented in orange-red, show star-forming regions and dust that is composed of soot-like organic molecules known as polycyclic aromatic hydrocarbons. MIRI also provides a snapshot of the bright nucleus of the large spiral, home to a supermassive black hole.

The spiral galaxy is classified as a Seyfert galaxy, one of the two largest groups of active galaxies, along with galaxies that host quasars. Seyfert galaxies aren’t as luminous or as distant as quasars, so they are better places to study similar phenomena in lower-energy light, like infrared.

This region is much like the Cartwheel Galaxy, one of the first interacting galaxies that Webb observed. Arp 107 may have turned out very similar in appearance to the Cartwheel, but since the smaller elliptical galaxy had an off-centre collision instead of a direct hit, the spiral galaxy got away with only its spiral arms being disturbed.



Arp107 MIRI Image [PR Image weic2423b](#)

The collision isn’t as bad as it sounds. Although there was much star formation occurring before, collisions between galaxies can compress gas, improving the conditions needed for more stars to form. On the other hand, as Webb reveals, collisions also disperse a lot of gas, potentially depriving new stars of the material they need to form.

Webb has captured these galaxies in the process of merging, which will take hundreds of millions of years. As the two galaxies rebuild after the chaos of their collision, Arp 107 may lose its smile, but it will inevitably turn into something just as interesting for future astronomers to study.

Arp 107 is located 465 million light-years from Earth in the constellation Leo Minor.

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

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

Contacts

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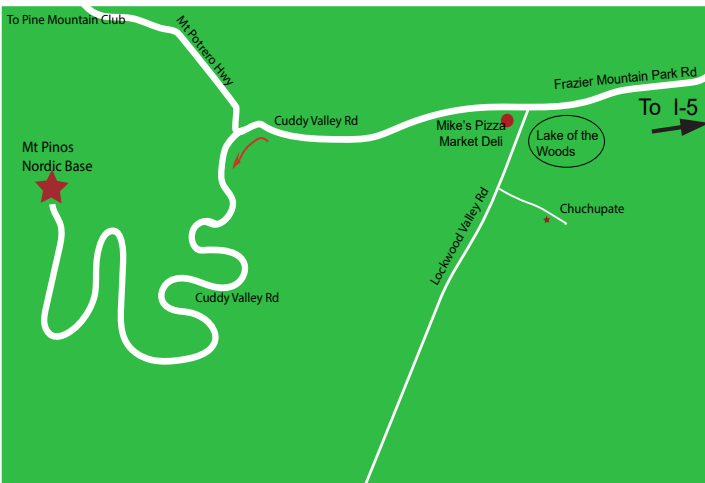
Ninja Menning
ESA Newsroom and Media Relations Office
Email: media@esa.int

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)

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.

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.



Solar System Summary

The **Sun** starts the month in central Virgo, ending the month in western Libra. On October 2nd an Annular will be passing through the South Pacific and southern South America.

The Planets

Mercury starts to peek out from behind the evening Sun after superior conjunction on the 30th. By the end of the month its 18° east of the Sun.

Venus has been separating itself from the evening Sun. By the end of the month is 38° east of the Sun, and very prominent in the Sunset.

Mars rising before midnight, starts the month in Gemini, moving east in to Cancer. On the 23rd the Moon sprint past during the day.

Jupiter now rising by 10 pm stops moving east on the 8th, some 3° west of the Crab Nebula. There after starts its retrograde motion till next February.

Saturn is still in retrograde motion in Aquarius, that will last till mid-November. Saturn is past opposition and has dimmed to Mag 0.7.

Uranus moving in retrograde 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 in retrograde near the southern border in Pisces at 7.8.

Dwarf Planets

134340 Pluto spends the month, in retrograde till the 9th, where it resumes normal motion, on the western edge of Capricorn, south of M75 at mag 14.4.

1 Ceres spends the month moving from the central teapot of Sagittarius moving east dimming to mag 9.1.

2 Pallas in normal motion passing through southern Hercules and into Ophiuchus at magnitude 10.35.

3 Juno continues moving east north of the ecliptic. By the end of month it is at mag 11.2, still less than half the way across Virgo. On the 15th it is Solar conjunction./

4 Vesta starts the month on the western edge of Leo in the morning twilight moving east into Virgo.

Moon Phases



First Qtr Oct 10 Full Oct 17 Third Qtr Oct 24 New Oct 2

Sun and Moon Rise and Set*

Date	Moonrise	Moonset	Sunrise	Sunset
10/1/2024	05:46	18:12	06:47	18:35
10/5/2024	09:33	19:53	06:50	18:30
10/10/2024	14:23	23:03	06:54	18:23
10/15/2024	17:20	04:46	06:58	18:17
10/20/2024	20:36	11:00	07:03	18:13
10/25/2024	00:46	15:03	07:07	18:05
10/30/2024	05:32	17:03	07:11	18:00

Planet Data*

October 1

	Rise	Transit	Set	Mag	Phase%
Mercury	06:51	12:47	18:42	-1.50	99.9
Venus	09:21	14:41	20:00	-3.94	84.6
Mars	00:03	07:16	14:26	0.48	87.5
Jupiter	22:20	05:32	12:40	-2.54	99.1
Saturn	17:33	23:12	04:55	0.65	99.9

October 15

	Rise	Transit	Set	Mag	Phase%
Mercury	07:50	13:17	18:44	-0.62	95.9
Venus	09:51	14:54	19:57	-3.98	81.2
Mars	23:39	06:50	13:59	0.32	87.8
Jupiter	21:25	04:37	11:45	-2.63	99.3
Saturn	16:36	22:14	03:56	0.71	99.9

October 30

	Rise	Transit	Set	Mag	Phase%
Mercury	08:44	13:46	18:48	-0.30	86.9
Venus	10:21	15:11	20:02	-4.02	77.3
Mars	23:09	06:18	13:25	0.10	88.6
Jupiter	20:23	03:35	10:43	-2.72	99.6
Saturn	15:36	21:13	02:55	0.79	99.8

*All time mentioned are local and approximate.

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

Suggested Observing List

The list below contains objects that will be visible on the night of the AVAC Deep Sky Star Party or the Saturday nearest the New Moon, in this case October 5, 2024. The list is sorted by the transit time of the object.

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M5	NGC5904	Globular	Ser	15h 18m 33s	+02° 04.9'	7.0	09:09	15:18	21:27
Barnard228	B228	DkNeb	Lup	15h 44m 00s	-34° 30.0'		11:34	15:43	19:53
IC4593	White Eyed Pea	P Neb	Her	16h 11m 44s	+12° 04.3'	11.0	09:34	16:11	22:48
IC4592	Jabbah	Neb	Sco	16h 11m 59s	-19° 27.4'		11:05	16:11	21:18
M80	NGC6093	Globular	Sco	16h 17m 03s	-22° 58.5'	8.5	11:22	16:16	21:11
IC4601		Neb	Sco	16h 20m 18s	-20° 04.9'		11:16	16:20	21:24
Abell38		P Neb	Sco	16h 23m 17s	-31° 44.9'	11.7	12:01	16:23	20:44
M4	Cat's Eye	Globular	Sco	16h 23m 35s	-26° 31.5'	7.5	11:41	16:23	21:05
IC4603	Rho Ophiuchi Complex [1]	Neb	Oph	16h 25m 24s	-24° 28.0'		11:35	16:25	21:14
IC4604	Rho Ophiuchi Complex [2]	Neb	Oph	16h 25m 33s	-23° 26.5'		11:32	16:25	21:18
NGC6124	C75	Open	Sco	16h 25m 36s	-40° 40.0'	5.8	12:47	16:25	20:03
Abell39		P Neb	Her	16h 27m 33s	+27° 54.5'	12.9	08:57	16:27	23:57
IC4605		Neb	Sco	16h 30m 12s	-25° 06.8'		11:42	16:30	21:17
NGC6153		P Neb	Sco	16h 31m 31s	-40° 15.2'	12.0	12:51	16:31	20:11
NGC6181		Galaxy	Her	16h 32m 21s	+19° 49.5'	11.9	09:31	16:32	23:33
NGC6171		Globular	Oph	16h 32m 32s	-13° 03.1'	8.1	11:06	16:32	21:58
NGC6178		Open	Sco	16h 35m 47s	-45° 38.6'	7.2	13:31	16:35	19:39
NGC6193	C82	Open	Ara	16h 41m 18s	-48° 46.0'	5.2	14:04	16:41	19:18
M13	Great Hercules Cluster	Globular	Her	16h 41m 41s	+36° 27.5'	7.0	08:33	16:41	00:49
NGC6210	Turtle Planetary Nebula	P Neb	Her	16h 44m 30s	+23° 48.0'	9.0	09:29	16:44	23:58
Barnard44a	B44a	DkNeb	Sco	16h 44m 45s	-40° 20.0'		13:04	16:44	20:24
NGC6204		Open	Ara	16h 46m 09s	-47° 01.0'	8.2	13:52	16:46	19:39
M12	Gumball Globular	Globular	Oph	16h 47m 14s	-01° 56.8'	8.0	10:49	16:47	22:44
NGC6231	Table of Scorpius	Open	Sco	16h 54m 00s	-41° 48.0'	2.6	13:22	16:53	20:24
IC4628	Prawn Nebula	Neb	Sco	16h 56m 58s	-40° 27.3'		13:17	16:56	20:35
NGC6254		Globular	Oph	16h 57m 09s	-04° 05.9'	6.6	11:05	16:57	22:48
Barnard47	B47	DkNeb	Oph	16h 59m 42s	-22° 38.0'		12:03	16:59	21:55
M62	Flickering Globular	Globular	Oph	17h 01m 13s	-30° 06.7'	8.0	12:32	17:01	21:29
M19	NGC6273	Globular	Oph	17h 02m 38s	-26° 16.0'	8.5	12:19	17:02	21:45
Barnard51	B51	DkNeb	Oph	17h 04m 44s	-22° 15.0'		12:07	17:04	22:01
IC4637		P Neb	Sco	17h 05m 10s	-40° 53.1'	14.0	13:28	17:05	20:41
Barnard56	B56	DkNeb	Sco	17h 08m 48s	-32° 05.0'		12:48	17:08	21:28
Barnard59	B59, Pipe Nebula	DkNeb	Oph	17h 11m 23s	-27° 29.0'		12:32	17:11	21:49
NGC6302	C69, Bug Nebula	P Neb	Sco	17h 13m 42s	-37° 06.0'	9.6	13:16	17:13	21:10
Barnard251	B251	DkNeb	Oph	17h 13m 48s	-20° 09.0'		12:09	17:13	22:17
Barnard63	B63	DkNeb	Oph	17h 16m 00s	-21° 28.0'		12:16	17:15	22:15
M92	NGC6341	Globular	Her	17h 17m 07s	+43° 08.1'	7.5	08:29	17:17	02:04

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ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M9	NGC6333	Globular	Oph	17h 19m 12s	-18° 31.0'	9.0	12:09	17:19	22:28
NGC6326		P Neb	Ara	17h 20m 46s	-51° 45.2'	12.0	15:19	17:20	19:22
Barnard256	B256	DkNeb	Oph	17h 22m 12s	-28° 49.0'		12:48	17:22	21:55
Barnard67a	B67a	DkNeb	Oph	17h 22m 30s	-21° 53.0'		12:24	17:22	22:20
Barnard71	B71	DkNeb	Oph	17h 23m 02s	-24° 00.0'		12:31	17:22	22:13
NGC6357	Lobster Nebula	Neb	Sco	17h 24m 43s	-34° 12.1'		13:13	17:24	21:35
IC4651		Open	Ara	17h 24m 52s	-49° 56.5'	6.9	15:00	17:24	19:49
Abell41		P Neb	Ser	17h 29m 04s	-15° 13.3'	13.9	12:09	17:28	22:48
Abell42		P Neb	Oph	17h 31m 31s	-08° 19.1'	14.6	11:51	17:31	23:10
Barnard78	B78	DkNeb	Oph	17h 32m 00s	-25° 35.0'		12:46	17:31	22:17
NGC6388		Globular	Sco	17h 36m 17s	-44° 44.1'	6.9	14:24	17:36	20:47
M14	NGC6402	Globular	Oph	17h 37m 36s	-03° 14.7'	9.5	11:43	17:37	23:31
Barnard276	B276	DkNeb	Oph	17h 39m 39s	-19° 49.0'		12:34	17:39	22:44
M6	Butterfly Cluster	Open	Sco	17h 40m 20s	-32° 15.2'	4.5	13:20	17:40	21:59
NGC6397	C86	Globular	Ara	17h 40m 42s	-53° 40.0'	5.6	16:11	17:40	19:10
NGC6426		Globular	Oph	17h 44m 55s	+03° 10.1'	11.2	11:33	17:44	23:56
Barnard83a	B83a	DkNeb	Sgr	17h 45m 18s	-20° 00.0'		12:40	17:45	22:49
IC4665		Open	Oph	17h 46m 30s	+05° 39.0'	4.2	11:27	17:46	00:04
NGC6445	Crescent Nebula	P Neb	Sgr	17h 49m 15s	-20° 00.6'	13.0	12:44	17:49	22:53
NGC6503		Galaxy	Dra	17h 49m 27s	+70° 08.6'	10.2	Circ	17:49	Circ
NGC6441		Globular	Sco	17h 50m 13s	-37° 03.0'	7.4	13:52	17:50	21:47
M7	Ptolemy's Cluster	Open	Sco	17h 53m 51s	-34° 47.6'	3.5	13:45	17:53	22:02
IC4670		Neb	Sgr	17h 55m 07s	-21° 44.6'		12:56	17:55	22:53
NGC6501		Galaxy	Her	17h 56m 04s	+18° 22.3'	12.3	10:59	17:55	00:52
M23	NGC6494	Open	Sgr	17h 57m 04s	-18° 59.1'	6.0	12:49	17:56	23:04
NGC6543	Cat Eye Nebula	P Neb	Dra	17h 58m 36s	+66° 38.0'	8.1	Circ	17:58	Circ
NGC6496		Globular	Sco	17h 59m 04s	-44° 16.0'	9.2	14:44	17:58	21:13
Barnard291		DkNeb	Sgr	17h 59m 43s	-33° 53.0'		13:47	17:59	22:12
Barnard292		DkNeb	Sgr	18h 00m 34s	-33° 20.0'		13:45	18:00	22:15
Barnard293		DkNeb	Sgr	18h 01m 12s	-35° 20.0'		13:55	18:01	22:06
M20	Trifid Nebula	Open+D Neb	Sgr	18h 02m 42s	-22° 58.2'	5.0	13:08	18:02	22:57
M8	Dragon Nebula	Open+D Neb	Sgr	18h 03m 41s	-24° 22.7'	5.0	13:13	18:03	22:53
M21	NGC6531	Open	Sgr	18h 04m 13s	-22° 29.3'	7.0	13:07	18:04	23:00
NGC6530		Open	Sgr	18h 04m 31s	-24° 21.5'	4.6	13:14	18:04	22:54
NGC6528		Globular	Sgr	18h 04m 50s	-30° 03.3'	9.5	13:36	18:04	22:33
IC4684		Neb	Sgr	18h 09m 08s	-23° 26.1'		13:16	18:09	23:02
IC4685		Neb	Sgr	18h 09m 18s	-23° 59.2'		13:18	18:09	23:00
IC1274		Neb	Sgr	18h 09m 51s	-23° 38.8'		13:17	18:09	23:02
IC1275		Neb	Sgr	18h 10m 07s	-23° 45.7'		13:18	18:10	23:01

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ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC6572		P Neb	Oph	18h 12m 06s	+06° 51.2'	9.0	11:50	18:11	00:33
NGC6567		P Neb	Sgr	18h 13m 45s	-19° 04.5'	12.0	13:06	18:13	23:21
IC4701		Neb	Sgr	18h 16m 36s	-16° 38.0'		13:01	18:16	23:31
Barnard93	B93	DkNeb	Sgr	18h 16m 53s	-18° 03.0'		13:06	18:16	23:27
IC1284		Neb	Sgr	18h 17m 39s	-19° 40.3'		13:12	18:17	23:23
M24	Small Sagittarius Star Cloud	Open	Sgr	18h 18m 26s	-18° 24.3'	4.5	13:08	18:18	23:27
M16	Eagle Nebula	Open+D Neb	Ser	18h 18m 48s	-13° 48.3'	6.5	12:55	18:18	23:42
Barnard308	B308	DkNeb	Sgr	18h 19m 08s	-22° 14.0'		13:21	18:19	23:16
M18	Black Swan	Open	Sgr	18h 19m 58s	-17° 06.1'	8.0	13:06	18:19	23:33
M17	Horseshoe Nebula	Open+D Neb	Sgr	18h 20m 47s	-16° 10.3'	7.0	13:04	18:20	23:37
HR6923	39 Dra	Mult	Dra	18h 23m 54s	+58° 48.0'	5.0	Circ	18:23	Circ
M28	NGC6626	Globular	Sgr	18h 24m 33s	-24° 52.1'	8.5	13:36	18:24	23:12
Barnard95	B95	DkNeb	Sct	18h 25m 35s	-11° 44.0'		12:55	18:25	23:55
Barnard97	B97	DkNeb	Sct	18h 29m 05s	-09° 55.0'		12:54	18:28	00:03
Abell44		P Neb	Sgr	18h 30m 11s	-16° 45.4'	12.6	13:15	18:30	23:44
NGC6637		Globular	Sgr	18h 31m 23s	-32° 20.8'	7.7	14:12	18:31	22:50
IC1287		Neb	Sct	18h 31m 26s	-10° 47.7'		12:58	18:31	00:03
M25	M25	Open	Sgr	18h 31m 42s	-19° 07.0'	6.5	13:24	18:31	23:38
IC4725		Open	Sgr	18h 31m 48s	-19° 06.7'	4.6	13:24	18:31	23:38
NGC6642		Globular	Sgr	18h 31m 54s	-23° 28.5'	8.8	13:38	18:31	23:24
NGC6644		P Neb	Sgr	18h 32m 35s	-25° 07.7'	12.0	13:45	18:32	23:19
NGC6647		Open	Sgr	18h 32m 49s	-17° 13.6'	8.0	13:19	18:32	23:45
IC4732		P Neb	Sgr	18h 33m 55s	-22° 38.6'	13.0	13:38	18:33	23:29
NGC6656	Crackerjack Cluster	Globular	Sgr	18h 36m 24s	-23° 54.2'	5.1	13:44	18:36	23:27
IC4756		Open	Ser	18h 38m 54s	+05° 27.0'	5.0	12:20	18:38	00:56
NGC6681		Globular	Sgr	18h 43m 12s	-32° 17.4'	8.1	14:23	18:43	23:02
NGC6694		Open	Sct	18h 45m 18s	-09° 23.0'	8.0	13:08	18:45	00:21
IC4776		P Neb	Sgr	18h 45m 51s	-33° 20.5'	12.0	14:30	18:45	23:00
Barnard318	B318	DkNeb	Sct	18h 49m 42s	-06° 23.0'		13:04	18:49	00:34
M11	Wild Duck Cluster	Open	Sct	18h 51m 05s	-06° 16.1'	7.0	13:05	18:50	00:36
M57	Ring Nebula	P Neb	Lyr	18h 53m 35s	+33° 01.7'	9.5	11:02	18:53	02:44
Barnard117	B117	DkNeb	Sct	18h 53m 43s	-07° 24.0'		13:11	18:53	00:35
NGC6715		Globular	Sgr	18h 55m 03s	-30° 28.7'	7.7	14:28	18:54	23:21
NGC6717	III-143	Globular	Sgr	18h 55m 06s	-22° 42.0'	9.2	13:59	18:54	23:50
Barnard122	B122	DkNeb	Sct	18h 56m 48s	-04° 45.0'		13:07	18:56	00:46
Barnard123	B123	DkNeb	Sct	18h 57m 39s	-04° 43.0'		13:07	18:57	00:47
NGC6723		Globular	Sgr	18h 59m 33s	-36° 37.9'	7.3	14:59	18:59	22:58
Barnard128	B128	DkNeb	Aql	19h 01m 40s	-04° 34.0'		13:11	19:01	00:51
NGC6729	C68	BrNeb	CrA	19h 01m 54s	-36° 57.0'		15:03	19:01	22:59
Barnard326	B326	DkNeb	Aql	19h 03m 00s	-00° 23.0'		13:01	19:02	01:04

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ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC6749		Globular	Aql	19h 05m 15s	+01° 54.0'	11.1	12:57	19:05	01:13
Barnard329	B329	DkNeb	Aql	19h 06m 59s	+03° 11.0'		12:55	19:06	01:18
NGC6760		Globular	Aql	19h 11m 12s	+01° 01.8'	9.1	13:05	19:11	01:16
Abell56		P Neb	Aql	19h 13m 07s	+02° 52.8'	12.4	13:02	19:12	01:23
NGC6772		P Neb	Aql	19h 14m 36s	-02° 42.4'	14.0	13:19	19:14	01:09
Barnard138	B138	DkNeb	Aql	19h 16m 00s	+00° 13.0'		13:12	19:15	01:19
M56	NGC6779	Globular	Lyr	19h 16m 36s	+30° 11.0'	9.5	11:37	19:16	02:55
NGC6778		P Neb	Aql	19h 18m 25s	-01° 35.7'	13.0	13:19	19:18	01:16
Abell61		P Neb	Cyg	19h 19m 10s	+46° 14.5'	13.0	10:06	19:19	04:31
Barnard140	B140	DkNeb	Aql	19h 19m 49s	+05° 13.0'		13:02	19:19	01:37
NGC6790		P Neb	Aql	19h 22m 57s	+01° 30.8'	10.0	13:15	19:22	01:29
NGC6803		P Neb	Aql	19h 31m 16s	+10° 03.3'	11.0	13:00	19:31	02:02
NGC6804		P Neb	Aql	19h 31m 35s	+09° 13.5'	12.0	13:02	19:31	02:00
Abell62		P Neb	Aql	19h 33m 18s	+10° 37.0'	13.0	13:00	19:33	02:05
NGC6807		P Neb	Aql	19h 34m 34s	+05° 41.0'	14.0	13:15	19:34	01:53
M55	NGC6809	Globular	Sgr	19h 40m 00s	-30° 57.7'	7.0	15:14	19:39	00:04
NGC6813		Neb	Vul	19h 40m 22s	+27° 18.5'		12:12	19:40	03:07
NGC6826	Blinking Planetary	P Neb	Cyg	19h 44m 48s	+50° 31.0'	8.8	09:46	19:44	05:43
Abell65		P Neb	Sgr	19h 46m 34s	-23° 08.2'	13.1	14:52	19:46	00:40
NGC6838		Globular	Sge	19h 53m 46s	+18° 46.6'	8.3	12:55	19:53	02:51
NGC6842		P Neb	Vul	19h 55m 02s	+29° 17.3'	14.0	12:19	19:54	03:30
HR7619	24 Cyg	Mult	Cyg	19h 55m 38s	+52° 26.3'	4.9	09:25	19:55	06:25
Abell66		P Neb	Sgr	19h 57m 32s	-21° 36.6'	14.1	14:58	19:57	00:56
Barnard144	Fish on the platter nebula	DkNeb	Cyg	19h 58m 00s	+35° 20.0'		11:55	19:57	03:59
NGC6853	Apple Core Nebula	P Neb	Vul	19h 59m 36s	+22° 43.2'	8.1	12:48	19:59	03:10
M75	NGC6864	Globular	Sgr	20h 06m 05s	-21° 55.3'	9.5	15:07	20:05	01:04
NGC6885	Vulpeculae Cluster	Open	Vul	20h 12m 00s	+26° 29.0'	5.9	12:47	20:11	03:36
NGC6891		P Neb	Del	20h 15m 09s	+12° 42.2'	12.0	13:36	20:15	02:53
NGC6894		P Neb	Cyg	20h 16m 24s	+30° 33.9'	14.0	12:35	20:16	03:56

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

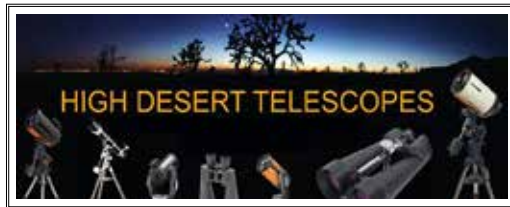
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Sgr - Sagittarius
Tau - Taurus
Tel - Telescopium
TrA - Triangulum Australe
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