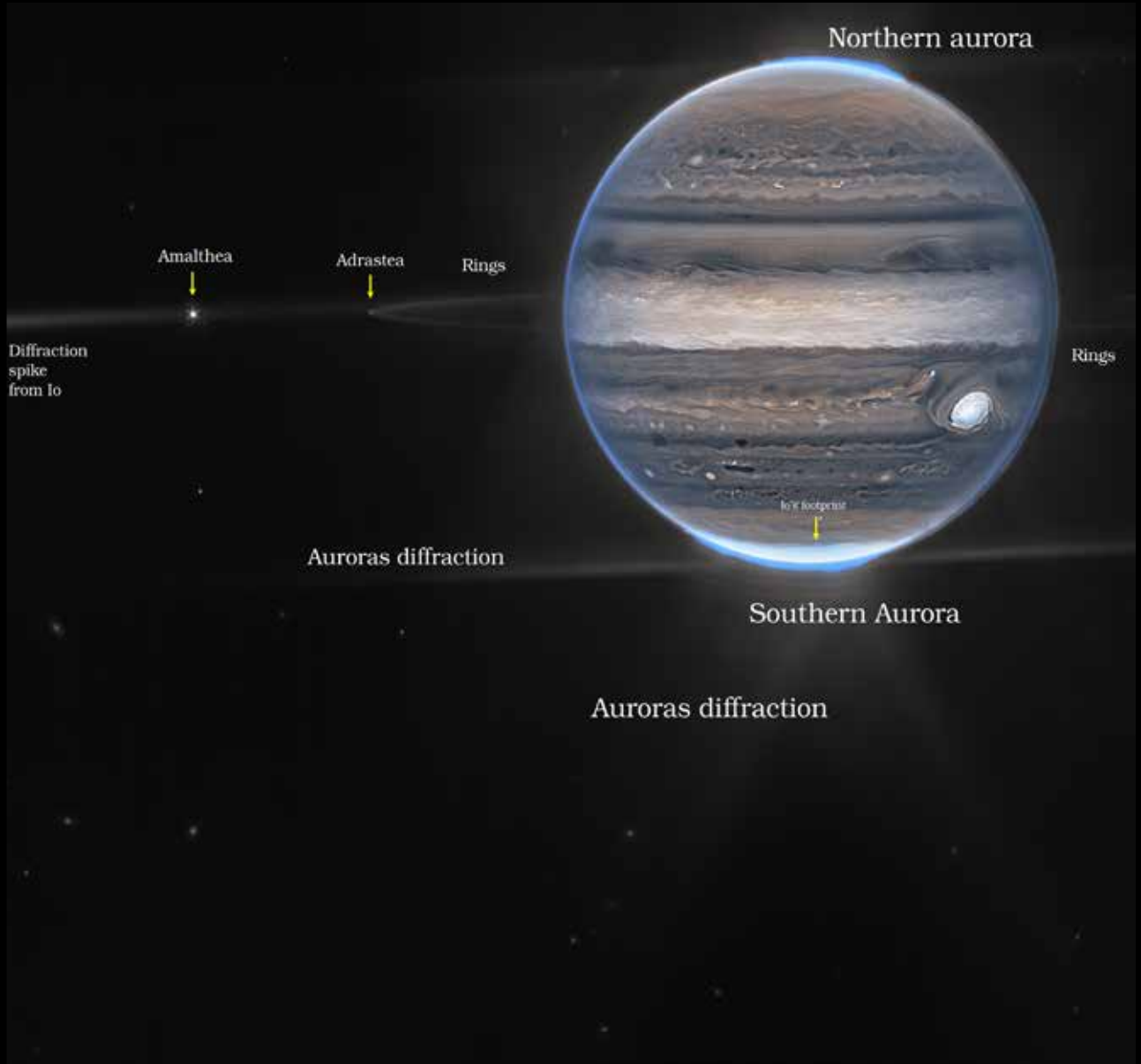


Desert Sky Observer

Antelope Valley Astronomy Club



Desert Sky Observer

www.avastronomyclub.org

February 2023

Upcoming Events

February 4: Moonwalk 6:00pm @ PDW
February 10: Club Meeting/ Star Party Stating at 6:00PM
February 14: Telescope Class at The Sage @ 6:30 pm
February 28: Astronomy Class at The Sage @ 6:30pm

Every clear night: Personal Star Party



AVAC Calendar

March 10: Club Meeting
March 11: Moonwalk 6:30pm @ PDW
March 14: Telescope Class at The Sage @ 6:30 pm
March 18: Messier Marathon @ Saddleback Butte SP
March 28: Astronomy Class at The Sage @ 6:30pm

Board Members

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

Vice-President: Navin Arjuna 661-789-7927
vice-president@avastronomyclub.org

Secretary: Rose Moore (661) 972-1953
secretary@avastronomyclub.org

Treasurer: Rod Girard (661) 803-7838
treasurer@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

Astronomical League Coordinator:
Frank Moore (661) 972-4775
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 Reflector -- the publication of the Astronomical League.
- 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/.

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

The AVAC is a Sustaining Member of The Astronomical League and the International Dark-Sky Association



www.avastronomyclub.org



President's Message

By Phil Wriedt

Hi There!

Our first meeting of the new year, a telescope night/star party, was on the 13th of January; granted it was cold and cloudy, but a few members did show up. However, it was really a disappointing turnout. The Board decided then, that at the February meeting we would try this again; so Jeremy would have more time to spread the word in the school district, and maybe the weather would be more cooperative.

At the same impromptu meeting of the Board we decided that attempting to field a booth at the AV Regional Science Olympiad on February 18, would just lead to additional hardship on the few members that regularly show at each event. So, no the Club is not going. Still if you want to go, it starts at 8:00 am.

Starting in January, Jeremy started holding a class on The Telescope on the 2nd Tuesday of the month, and on the 4th Tuesday, there will be a class on Astronomy. In February the dates are the 14th and the 28th, respectively. Both classes will start at 6:30pm at the Sage Planetarium. While many of you have been using your telescope for some time, and have extensive knowledge of astronomy, sitting in on a beginning class may expose you to new ideas or reinforce your current knowledge. Come join us. More information will come by emails and at meetings.

Our first Deep Sky Star Party for the year is scheduled for March 18th at Saddleback State Park. We have a reservation pending for the group campsite (I haven't heard back from the Rangers yet). This is one of the best times to attempt a Messier Marathon. Plan on coming, let's put the party back in "Star Party"!

We have a Moonwalk on the 4th at Prime Desert Woodland. The Moonwalk will start about 6 pm, so get there by about 4:30 to setup in daylight. Come, bring your telescope, binoculars, star chart, and of course enthusiasm. Meet the public and help answer questions. See You There!

Remember it's renewal time again, see page 5.

Keep Looking Up, Phil

On The Cover

With giant storms, powerful winds, auroras, and extreme temperature and pressure conditions, Jupiter has a lot going on. Now, the NASA/ESA/CSA James Webb Space Telescope has captured new images of the planet. Webb's Jupiter observations will give scientists even more clues to Jupiter's inner life.

In this wide-field view, Webb sees Jupiter with its faint rings, which are a million times fainter than the planet, and two tiny moons called Amalthea and Adrastea. The fuzzy spots in the lower background are likely galaxies "photobombing" this Jovian view.

This is a composite image from Webb's NIRCam instrument (two filters) and was acquired on 27 July 2022.

Credit:

NASA, ESA, Jupiter ERS Team; image processing by Ricardo Hueso (UPV/EHU) and Judy Schmidt

From the Secretary By Rose Moore

Members:

Coming up first in February is a Prime Desert Moon Walk with Jeremy, on Saturday Feb. 4th at 6pm. We need members with telescopes to help out at this event. Weather permitting. Set up time is 30-60 minutes before the event. Planets up: Jupiter, Saturn(till 6:12pm), Mars, Venus (till 7:26pm). The Moon will be up and is a waxing gibbous, almost full. Sunset is 5:25pm. Here is the location for the new members: Prime Desert Woodland Preserve, 43201 35th St W, Lancaster, CA 93536. You can come and take the walk with Jeremy if not setting up a telescope.

The club meeting on Friday February 10 will be another attempt at a star party for the Palmdale School District students. The weather did not cooperate on the first try, though Jeremy did set up a club scope to show Jupiter in between the clouds. We also had a person bring his 10 inch dob and use it for the first time! Start time is 6pm, ending at around 9pm. Weather permitting. We need members with telescopes for the event. Set up time is 30-60 minutes prior to the event. Planets up: Mars, Jupiter (till 9:11pm), Venus (till 7:38pm). The Moon will be a waning gibbous and will not be up until 10:23pm.

Please note that we will not be participating in the AV College Olympiad (Feb. 18th) this year as we don't have enough members to support this event.

Don't forget we have classes taught by Jeremy at the SAGE starting at 6:30pm on Tuesday Feb. 14th (Telescope Class) and Tuesday Feb. 28th (Astronomy Class). These are free and open to the public.

We had a Board meeting recently and discussed whether to have a trip to Mt. Wilson this year. The decision to have this event will be based on the response we receive. Please let me know if you are interested. Mt. Wilson opens up their calendar on March 1st for bids.

Our first club dark sky star party for the year will be March 18th at Saddleback State Park! Further details to come. Dates for future dark sky star parties will be placed on our club calendar soon.

Hoping for warm and clear skies! Rose

AVAC Membership Renewal

It is that time year again, time to renew your AVAC Membership and HOORAY!!!, we are back in the Sage Planetarium for our monthly meetings. We have had in person meetings for the last few months now and it has been great. However if you haven't had a chance to make it out to one of these meetings I wholeheartedly encourage you to attend. The Sage Planetarium is one of the club's most rewarding benefits.

It is very gratifying to see the early membership renewals. In these times of financial uncertainty our members are more than ever the lifeblood for the AVAC. That said, please worry not, financially the club is still solvent and we are able to meet all our obligations while providing for future club events and guest speakers etc.

Please remember that our meetings are open to the public and all will be welcome. So, if for any reason you are unable to renew your membership you are still welcome to attend and we look forward to seeing you all again.

For administrative reasons we encourage members to renew their membership in January. For myself the easiest way to renew my membership was through the AVAC website via our PayPal account. However you can renew at our monthly club meetings with good old cash or by check.

For those unable to attend our monthly meeting you can renew your membership through the mail by sending a check to the club's Post Office Box:

Antelope Valley Astronomy Club
PO BOX 8545
Lancaster, CA 93539-8545

For members less familiar with the club's website, it is actually fairly simple:

- Google Antelope Valley Astronomy Club and then open on the link.
- Click on MEMBER and then click on LOGIN.
- The default Member Name will be your Membership Number.
- If you had Signed Up on line you would have created a Password, but if you have forgotten it, use the Forgot Password link.
- Once you have Logged In, under Member click on Profile.
- Under Profile click on Membership.
- Under Your Current Membership click on Renew Now.
- You will have the choice of paying with a PayPal account or with a Credit Card.
- If you choose Credit Card PayPal will allow you to pay as a Guest

Thank you,

Rod Girard AVAC Treasurer

Spot the King of Planets: Observe Jupiter

by David Prosper, NASA Night Sky Network

Jupiter is our solar system's undisputed king of the planets! Jupiter is bright and easy to spot from our vantage point on Earth, helped by its massive size and banded, reflective cloud tops. Jupiter even possesses moons the size of planets: Ganymede, its largest, is bigger than the planet Mercury. What's more, you can easily observe Jupiter and its moons with a modest instrument, just like Galileo did over 400 years ago.

Jupiter's position as our solar system's largest planet is truly earned; you could fit 11 Earths along Jupiter's diameter, and in case you were looking to fill up Jupiter with some Earth-size marbles, you would need over 1300 Earths to fill it up –and that would still not be quite enough! However, despite its awesome size, Jupiter's true rule over the outer solar system comes from its enormous mass. If you took all of the planets in our solar system and put them together they would still only be half as massive as Jupiter all by itself. Jupiter's mighty mass has shaped the orbits of countless comets and asteroids. Its gravity can fling these tiny objects towards our inner solar system and also draw them into itself, as famously observed in 1994 when Comet Shoemaker-Levy 9, drawn towards Jupiter in previous orbits, smashed into the gas giant's atmosphere. Its multiple fragments slammed into Jupiter's cloud tops with such violence that the fireballs and dark impact spots were not only seen by NASA's orbiting Galileo probe, but also observers back on Earth!

Jupiter is easy to observe at night with our unaided eyes, as well-documented by the ancient astronomers who carefully recorded its slow movements from night to night. It can be one of the brightest objects in our nighttime skies, bested only by the Moon, Venus, and occasionally Mars, when the red planet is at opposition. That's impressive for a planet that, at its closest to Earth, is still over 365 million miles (587 million km) away. It's even more impressive that the giant world remains very bright to Earthbound observers at its furthest distance: 600 million miles (968 million km)! While the King of Planets has a coterie of around 75 known moons, only the four large moons that Galileo originally observed in 1610 – Io, Europa, Ganymede, and Callisto – can be easily observed by Earth-based observers with very modest equipment. These are called, appropriately enough, the Galilean moons. Most telescopes will show the moons as faint star-like objects neatly lined up close to bright Jupiter. Most binoculars will show at least one or two moons orbiting the planet. Small telescopes will show all four of the Galilean moons if they are all visible, but sometimes they can pass behind or in front of Jupiter, or even each other. Telescopes will also show details like Jupiter's cloud bands and, if powerful enough, large storms like its famous Great Red Spot, and the shadows of the Galilean moons passing between the Sun and Jupiter. Sketching the positions of Jupiter's moons during the course of an evening - and night to night – can be a rewarding project! You can download an activity guide from the Astronomical Society of the Pacific at bit.ly/drawjupitermoons

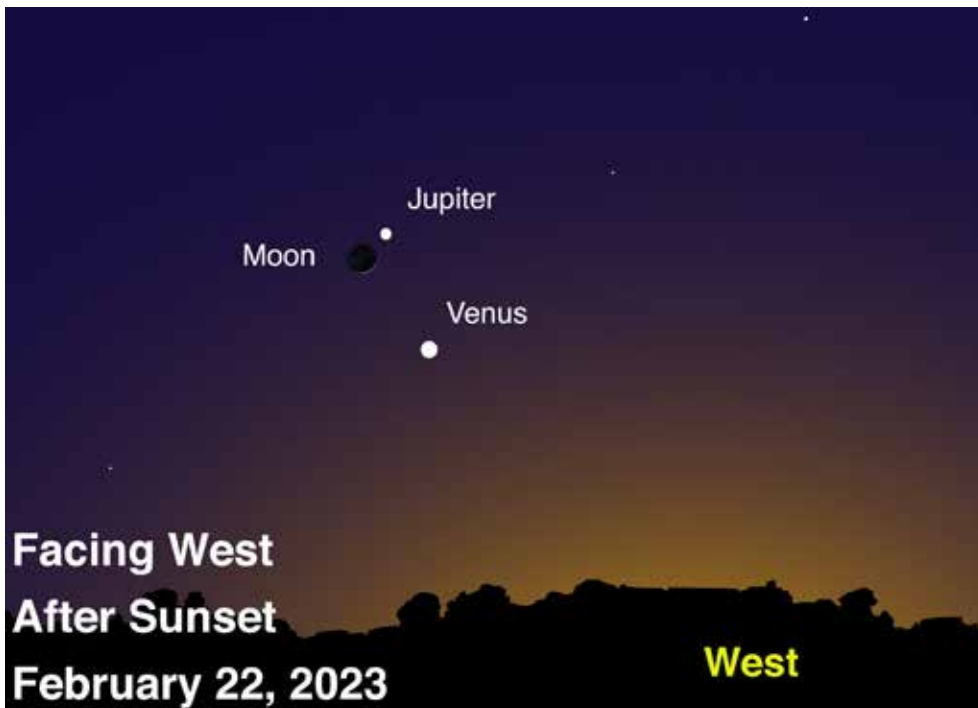
NASA's Juno mission currently orbits Jupiter, one of just nine spacecraft to have visited this awesome world. Juno entered Jupiter's orbit in 2016 to begin its initial mission to study this giant world's mysterious interior. The years have proven Juno's mission a success, with data from the probe revolutionizing our understanding of this gassy world's guts. Juno's mission has since been extended to include the study of its large moons, and since 2021 the plucky probe, increasingly battered by Jupiter's powerful radiation belts, has made close flybys of the icy moons Ganymede and Europa, along with volcanic Io. In 2024 NASA will launch the Europa Clipper mission to study this world and its potential to host life inside its deep subsurface oceans in much more detail. Find the latest discoveries from Juno and NASA's missions at nasa.gov.



This stunning image of Jupiter's cloud tops was taken by NASA's Juno mission and processed by Kevin M. Gill. You too can create amazing images like this, all with publicly available data from Juno. Go to missionjuno.swri.edu/junocam to begin your image procession journey – and get creative!

Full Image Credit: NASA/JPL-Caltech/SwRI/MSSS; Processing: Kevin M. Gill, license: CC BY 2.0)

<https://creativecommons.org/licenses/by/2.0/> Source: <https://apod.nasa.gov/apod/ap201123.html>



Look for Jupiter as it forms one of the points of a celestial triangle, along with Venus and a very thin crescent Moon, the evening of February 22, 2023. This trio consists of the brightest objects in the sky – until the Sun rises! Binoculars may help you spot Jupiter's moons as small bright star-like objects on either side of the planet. A small telescope will show them easily, along with Jupiter's famed cloud bands. How many can you count? Keep watching Jupiter and Venus as the two planets will continue to get closer together each night until they form a close conjunction the night of March 1.

Image created with assistance from Stellarium.

Additional Skywatching Resources

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

This article is distributed by NASA Night Sky Network

The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, and more!

Space News

News from around the Net

Astronaut Vest Built To Combat Space Radiation Returns To Earth

Radiation exposure has always been a huge concern for astronauts working in space. “Astronauts are exposed to ionizing radiation with effective doses in the range from 50 to 2,000 Milli-Sievert,” according to NASA. This amount is equivalent to 150 to 6,000 chest X-rays. That’s why crew members on the International Space Station (ISS) recently spent several weeks testing a new radiation-blocking garment designed to help combat the toxic effects of space radiation. . . (continued at <https://astronomy.com/news/2023/01/new-protective-gear-developed-for-astronauts>)



Unlocking The Mystery Of Comets

“Of all the heavenly bodies, comets are assuredly those whose appearance strikes most forcibly the attention of mortals,” wrote French astronomer Camille Flammarion in his book Popular Astronomy (1894). And, for as long as humans have looked toward the sky, it’s been true. Comets have both terrified and amazed us. This was never more apparent in modernity than in 1910. Comet 1P/Halley, better known as Halley’s Comet, had last been visible in 1836 and would grace the heavens again that spring. . . (continued at <https://astronomy.com/magazine/news/2023/01/unlocking-the-mystery-of-comets>)



How The James Webb Space Telescope Takes Such Stunning Images

Over the past six months, we Earthlings have seen some pretty awe-inspiring images through the James Webb Space Telescope (JWST). Since the telescope’s first image was revealed to the public in July, 2022, JWST has captured images of ancient galaxies, glittering nebulae, and remote exoplanets. It’s clear these pictures aren’t the work of your average point-and-shoot camera — each one is the result of an impressive array of instruments and technologies, . . . (continued at <https://astronomy.com/news/2023/01/how-the-james-webb-space-telescope-takes-such-stunning-pictures>)



Hubble And Webb Image Galaxies’ Lost Stars

Sometimes, galaxies lose their stars. Just as a jostle on a crowded sidewalk might leave pennies dropped on the ground, gravitational interactions between crowded-together galaxies can fling a few stars out of their hosts and into the space between. Astronomers term this faintest of glows intracluster light, and they must use powerful observatories to look for it — including the Hubble and James Webb telescopes. For the past two decades, we’ve seen this glimmer of wandering stars in pretty much every galaxy cluster we’ve looked at. . . (continued at <https://skyandtelescope.org/astronomy-news/hubble-and-webb-image-galaxies-lost-stars/>)



NASA And DARPA Will Be Testing A Nuclear Rocket In Space

The coming decades of space exploration will see astronauts return to the Moon, the first crewed missions to Mars, and robotic missions to the outer Solar System (among other things). These missions will leverage innovative technologies that allow faster transits, long-duration stays, and sustainable living far from Earth. To this end, NASA and other space agencies are investigating nuclear applications, especially where energy and propulsion are concerned. . . (continued at <https://www.universetoday.com/159759/nasa-and-darpa-will-be-testing-a-nuclear-rocket-in-space/#more-159759>)



Instrument On Jwst Has Gone Offline

The JWST is having a problem. One of its instruments, the Near Infrared Imager and Slitless Spectrograph (NIRISS), has gone offline. The NIRISS performs spectroscopy on exoplanet atmospheres, among other things. It’s been offline since Sunday, January 15 due to a communications error. The internal communications error led to the software timing out. . . (continued at <https://phys.org/news/2023-01-instrument-jwst-offline.html>)



Space News

News from around the Net

Flashes On The Sun Could Help Scientists Predict Solar Flares

Using data from NASA's Solar Dynamics Observatory, or SDO, researchers from NorthWest Research Associates, or NWRA, identified small signals in the upper layers of the solar atmosphere, the corona, that can help identify which regions on the Sun are more likely to produce solar flares – energetic bursts of light and particles released from the Sun. . . (continued at <https://www.technology.org/2023/01/26/ashes-on-the-sun-could-help-scientists-predict-solar-flares/>)



Astronomers Find 25 Fast Radio Bursts That Repeat On A Regular Basis

Like Gravitational Waves (GWs) and Gamma-Ray Bursts (GRBs), Fast Radio Bursts (FRBs) are one of the most powerful and mysterious astronomical phenomena today. These transient events consist of bursts that put out more energy in a millisecond than the Sun does in three days. While most bursts last mere milliseconds, there have been rare cases where FRBs were found repeating. . . (continued at <https://www.universetoday.com/159813/astronomers-find-25-fast-radio-bursts-that-repeat-on-a-regular-basis/>)



Meteorites Reveal Likely Origin Of Earth's Volatile Chemicals

By analysing meteorites, Imperial[College of London] researchers have uncovered the likely far-flung origin of Earth's volatile chemicals, some of which form the building blocks of life. They found that around half the Earth's inventory of the volatile element zinc came from asteroids originating in the outer Solar System -- the part beyond the asteroid belt that includes the planets Jupiter, Saturn, and Uranus. . . (continued at <https://www.sciencedaily.com/releases/2023/01/230127131132.htm>)



A Third Planet Found Orbiting Nearest Star To Sun

Astronomers have spotted what appears to be a third planet orbiting Proxima Centauri, the closest star to the Sun. The newly discovered world, dubbed Proxima d, has just 25 percent the mass of Earth and orbits at a distance of 4 million kilometres (2.5 million miles), taking just four days to complete one trip around its star. The planet orbits between the red dwarf and the star's habitable zone, the region where water can exist as a liquid on the surface . . . (continued at <https://astronomynow.com/2022/02/11/a-third-exoplanet-found-orbiting-the-suns-nearest-neighbour/>)



Starry Tail Tells The Tale Of Dwarf Galaxy Evolution

A giant diffuse tail of stars has been discovered emanating from a large, faint dwarf galaxy. The presence of a tail indicates that the galaxy has experienced recent interaction with another galaxy. This is an important clue for understanding how so called "ultra-diffuse" galaxies are formed. Astronomers using the Subaru Telescope and the Canada-France-Hawaii Telescope found a tail of stars stretching 200,000 light-years out away from a galaxy known as F8D1. This galaxy is a member of the M81 group . . . (continued at <https://phys.org/news/2023-01-starry-tail-tale-dwarf-galaxy.html>)



NASA Spies Martian Rocks That Look Just Like A Teddy Bear

Scientists studying the surface of Mars recently found a piece of the rocky planet smiling back at them. In an image shared Jan. 25 by The University of Arizona (UA), what appears to be the face of an enormous Martian teddy bear — complete with two beady eyes, a button nose and an upturned mouth — grins at the camera of NASA's Mars Reconnaissance Orbiter (MRO). According to UA, this photo of an uncanny assortment of geological formations was snapped on Dec. 12, 2022, as the MRO cruised roughly 156 miles (251 kilometers) above the Red Planet. . . . (continues at <https://www.space.com/mars-teddy-bear-face-hirise>)



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.



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.

Saddleback Butte State Park is east of 170th Street East between Avenue I and Avenue K. Elevation 3651 feet. Temperatures in summer average 95° with a high of 115,° winter average lows are 33° with occasional snow. There are 37 individual campsites and one group campsite. When the club has a star party there the group campsite is used. Individual campsites cost \$20 per night. Enter off Avenue K.



Planet Summary

The **Sun** travels from the middle of Capricorn to the middle of Aquarius during February.

Mercury starts the month high in the morning sky just past its greatest western elongation on the 30th. On the 10th Pluto is in conjunction 1.5° south, M75 is between them.

Venus in twilight, begins its climb away from the Sun becoming more prominent in the evening. On the 15th (at 04:30) Neptune is in conjunction 47 arc-secs north. On the 1st of March Jupiter is in conjunction at sunset.

Mars spends the month in northern Taurus, heading east. The 58% waxing Moon passes by on the 27th about 20:00.

Jupiter continues moving east in the southern corner of Pisces, cuts across a northeast corner of Cetus and slips back into Pisces on the 19th. On March 1st Venus (mag -3.97) is in conjunction 31 arc-minutes north, Jupiter at mag -2.11.

Saturn is too close to the Sun to be seen. In solar conjunction on the 16th.

Uranus is in southeastern Aries at mag 5.7 slowly moving east.

Neptune spends the month slowly moving east at the northeastern edge of Aquarius at mag 7.9, and at the end of the month is waiting to cross into Pisces. Probably too close to the Sun .

Pluto spends the month on the eastern edge of Sagittarius slowing moving east at mag 14.4, crossing into Capricorn on the last day of the month, just south of M75.

Asteroids

Ceres (mag 7.79) starts the month on a westward swing through northwestern Virgo. On the 27th crosses into Coma Berenices (mag 7.16).

Pallas (mag 7.6) has ended its retrograde motion and is completing the lap around Canis Major ending the month west of Sirius (7.8), then afterwards heading northeast into Monoceros next month.

Juno (mag 9.6) moves east in northern Cetus stopping before crossing into Pisces.

Vesta (mag 8.4) spends the month chasing Juno. Starting in the corner of Cetus, cutting across Pisces, back into Cetus, and ending in a northern corner of Cetus.

Moon Phases



First Qtr
Feb 27

Full
Feb 5

Third Qtr
Feb 13

New
Feb 19

Sun and Moon Rise and Set*

Date	Moonrise	Moonset	Sunrise	Sunset
2/1/2023	13:45	04:11	06:50	17:22
2/5/2023	17:30	07:07	06:47	17:26
2/10/2023	22:20	09:20	06:43	17:30
2/15/2023	02:44	12:23	06:38	17:35
2/20/2023	07:08	18:25	06:32	17:40
2/25/2023	09:41	23:59	06:26	17:45
2/28/2023	11:40	02:04	06:23	17:47

Planet Data*

February 1

	Rise	Transit	Set	Mag	Phase%
Mercury	05:23	10:23	15:22	-0.10	67.7
Venus	08:09	13:43	19:18	-3.94	91.3
Mars	12:22	19:38	02:58	-0.23	91.8
Jupiter	09:24	15:30	21:56	-2.23	99.4
Saturn	07:38	13:00	18:22	0.81	99.9

February 15

	Rise	Transit	Set	Mag	Phase%
Mercury	05:41	10:46	15:51	-0.20	83.5
Venus	07:58	13:52	19:46	-3.95	88.6
Mars	11:43	19:00	02:21	0.13	90.6
Jupiter	08:36	14:45	20:45	-2.16	99.6
Saturn	06:48	12:12	17:36	0.76	100.

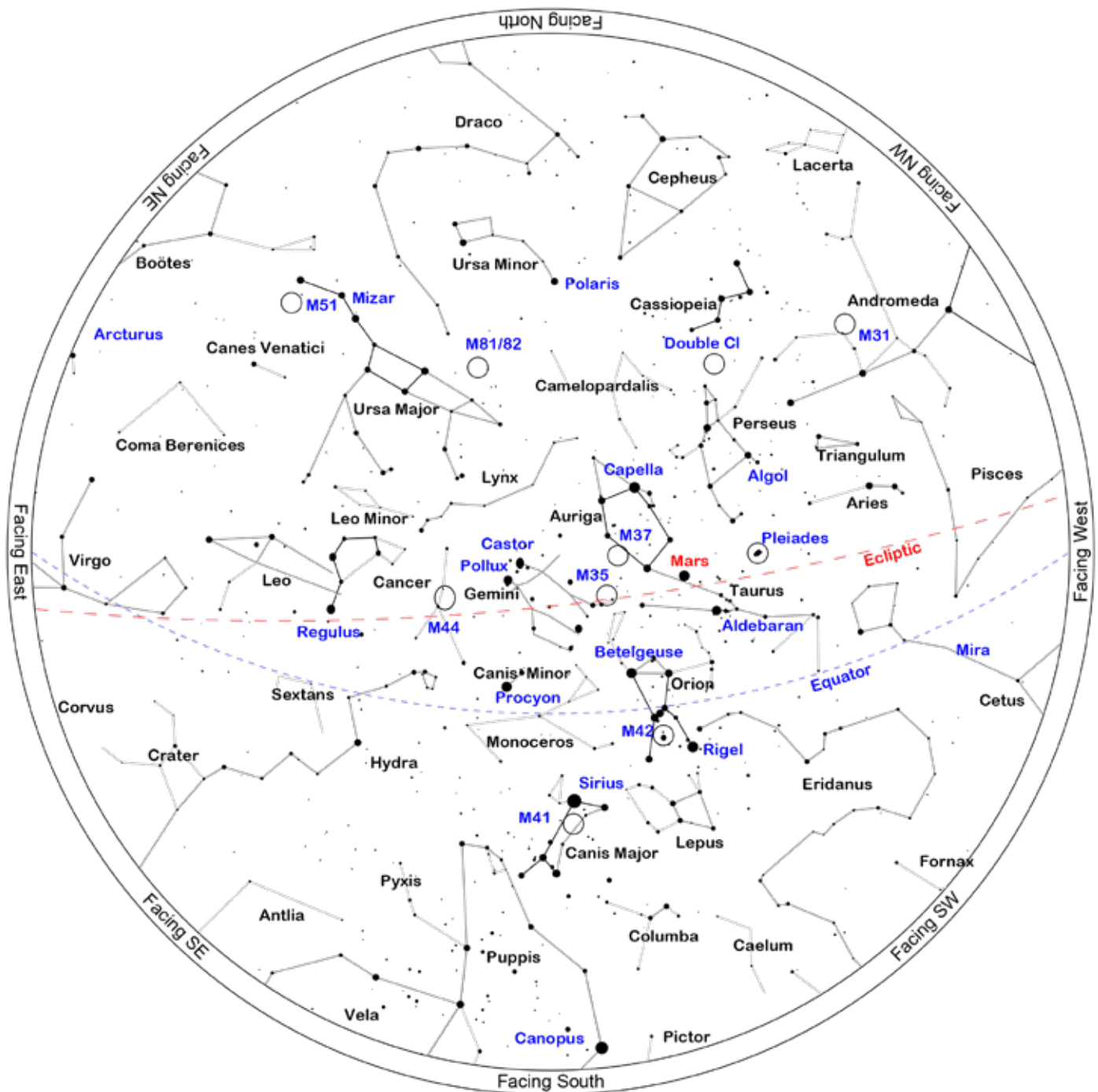
February 28

	Rise	Transit	Set	Mag	Phase%
Mercury	05:56	11:17	16:39	-0.57	92.7
Venus	07:46	13:59	20:12	-3.97	85.8
Mars	11:11	18:30	01:52	0.43	89.3
Jupiter	07:53	14:04	20:16	-2.12	99.7
Saturn	06:01	11:27	16:52	0.85	99.9

*All time mentioned are local and approximate.

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

Sky Chart



Location: Set from geolocation service
Latitude: 34° 39' N, longitude: 118° 10' W
Time: 2023 February 18, 21:00 (UTC -08:00)

Powered by: Heavens-Above.com

Desert Sky Observer

www.avastronomyclub.org

February 2023

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 February 18, 2023. The list is sorted by the transit time of the object.

ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M110	Satellite Of Andromeda Galaxy	Galaxy	And	00h 40m 22s	+41° 41.1'	8.9	06:04	14:41	23:18
NGC210		Galaxy	Cet	00h 40m 35s	-13° 52.3'	10.9	09:17	14:41	20:05
NGC206	V-36	Neb	And	00h 40m 36s	+40° 44.0'		06:10	14:41	23:12
Arp168	M32	Galaxy	And	00h 42m 41s	+40° 51.0'	9.0	06:12	14:43	23:15
M32	Satellite Of Andromeda Galaxy	Galaxy	And	00h 42m 42s	+40° 51.9'	9.1	06:12	14:43	23:15
M31	Andromeda Galaxy	Galaxy	And	00h 42m 44s	+41° 16.1'	4.3	06:09	14:43	23:17
NGC246	C56	P Neb	Cet	00h 47m 00s	-11° 53.0'	10.9	09:18	14:47	20:17
NGC254		Galaxy	Scl	00h 47m 28s	-31° 25.2'	11.8	10:24	14:48	19:12
NGC288		Globular	Scl	00h 52m 45s	-26° 35.0'	8.1	10:11	14:53	19:36
NGC281	PacMan Nebula	Open	Cas	00h 52m 54s	+56° 37.4'	7.0	Circ	14:53	Circ
IC59	Gamma Cassiopeiae Nebula	Neb	Cas	00h 57m 29s	+61° 08.6'		Circ	14:58	Circ
IC63	Gamma Cassiopeiae Nebula	Neb	Cas	00h 59m 29s	+60° 54.7'		Circ	15:00	Circ
C51	IC1613	IrrGal	Cet	01h 04m 48s	+02° 07.0'	9.3	08:57	15:05	21:14
NGC474		Galaxy	Psc	01h 20m 07s	+03° 24.9'	11.1	09:08	15:21	21:33
NGC485		Galaxy	Psc	01h 21m 28s	+07° 01.0'	14.0	09:00	15:22	21:44
M103	NGC581	Open	Cas	01h 33m 23s	+60° 39.0'	7.0	Circ	15:34	Circ
NGC598	Pinwheel Galaxy	Galaxy	Tri	01h 33m 51s	+30° 39.6'	5.7	07:54	15:34	23:15
NGC604	III-150	Neb	Tri	01h 34m 33s	+30° 47.0'		07:54	15:35	23:16
M74	The Phantom	Galaxy	Psc	01h 36m 42s	+15° 47.0'	9.8	08:49	15:37	22:25
M76	Little Dumbbell Nebula	P Neb	Per	01h 42m 18s	+51° 34.2'	12.0	05:31	15:43	01:55
NGC651	Apple Core Nebula	P Neb	Per	01h 42m 21s	+51° 34.1'	12.2	05:31	15:43	01:55
NGC637		Open	Cas	01h 43m 04s	+64° 02.4'	8.2	Circ	15:44	Circ
NGC654		Open	Cas	01h 44m 00s	+61° 53.0'	6.5	Circ	15:44	Circ
NGC720		Galaxy	Cet	01h 53m 00s	-13° 44.3'	10.2	10:30	15:53	21:17
NGC780		Galaxy	Tri	02h 00m 35s	+28° 13.5'	14.0	08:31	16:01	23:32
NGC784		Galaxy	Tri	02h 01m 17s	+28° 50.2'	11.8	08:29	16:02	23:35
NGC821		Galaxy	Ari	02h 08m 21s	+10° 59.6'	10.8	09:35	16:09	22:43
Baily191	NGC884	Open	Per	02h 22m 18s	+57° 08.1'	4.0	Circ	16:23	Circ
M34	Spiral Cluster	Open	Per	02h 42m 05s	+42° 45.6'	6.0	07:59	16:43	01:26
M77	Cetus A	Galaxy	Cet	02h 42m 41s	-00° 00.8'	9.7	10:40	16:43	22:46
NGC1084		Galaxy	Eri	02h 46m 00s	-07° 34.6'	10.6	11:05	16:46	22:28
IC1848	Soul Nebula	Open	Cas	02h 51m 18s	+60° 24.4'	6.5	Circ	16:52	Circ
NGC1156		Galaxy	Ari	02h 59m 42s	+25° 14.2'	11.7	09:41	17:00	00:19
NGC1201		Galaxy	For	03h 04m 08s	-26° 04.1'	10.6	12:20	17:05	21:49
M45	Pleiades	Open	Tau	03h 47m 30s	+24° 07.0'	1.6	10:33	17:48	01:03

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ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
IC353		Neb	Tau	03h 53m 00s	+25° 48.0'		10:32	17:53	01:15
IC2003		P Neb	Per	03h 56m 22s	+33° 52.5'	13.0	10:02	17:57	01:51
NGC1499	California Nebula	Neb	Per	04h 03m 14s	+36° 22.0'		09:57	18:04	02:10
NGC1515		Galaxy	Dor	04h 04m 03s	-54° 06.0'	11.0	16:41	18:05	19:28
NGC1496		Open	Per	04h 04m 32s	+52° 39.7'	10.0	07:33	18:05	04:37
NGC1502		Open	Cam	04h 07m 50s	+62° 19.8'	5.7	Circ	18:08	Circ
IC360		Neb	Tau	04h 09m 00s	+26° 06.0'		10:47	18:09	01:32
NGC1514	Crystal Ball Nebula	P Neb	Tau	04h 09m 17s	+30° 46.5'	10.0	10:29	18:10	01:51
NGC1513		Open	Per	04h 09m 57s	+49° 30.8'	8.4	08:27	18:10	03:54
IC359		Neb	Tau	04h 12m 28s	+27° 42.1'		10:44	18:13	01:41
NGC1535		P Neb	Eri	04h 14m 16s	-12° 44.3'	10.0	12:48	18:15	23:42
Barnard10	B10	DkNeb	Tau	04h 18m 41s	+28° 16.0'		10:48	18:19	01:50
NGC1545		Open	Per	04h 20m 57s	+50° 15.2'	6.2	08:28	18:21	04:14
NGC1569		Galaxy	Cam	04h 30m 49s	+64° 50.8'	11.2	Circ	18:31	Circ
NGC1582		Open	Per	04h 31m 53s	+43° 49.0'	7.0	09:41	18:32	03:24
NGC1560		Galaxy	Cam	04h 32m 48s	+71° 52.7'	11.5	Circ	18:33	Circ
Barnard19	B19	DkNeb	Tau	04h 33m 00s	+26° 16.0'		11:10	18:33	01:57
Barnard20	B20	DkNeb	Per	04h 37m 04s	+50° 58.0'		08:35	18:38	04:40
NGC1624		Open	Per	04h 40m 36s	+50° 27.6'	10.4	08:45	18:41	04:37
NGC1640		Galaxy	Eri	04h 42m 14s	-20° 26.0'	11.7	13:39	18:43	23:46
NGC1647		Open	Tau	04h 45m 55s	+19° 06.8'	6.4	11:48	18:46	01:45
IC2118	Witch Head Nebula	Neb	Eri	05h 04m 54s	-07° 15.0'		13:23	19:05	00:48
NGC1851	C73	Globular	Col	05h 14m 06s	-40° 03.0'	7.3	15:32	19:15	22:57
IC405	Flaming Star Nebula	Neb	Aur	05h 16m 29s	+34° 21.3'		11:20	19:17	03:14
M79	NGC1904	Globular	Lep	05h 24m 11s	-24° 31.4'	8.5	14:35	19:25	00:14
M38	Starfish Cluster	Open	Aur	05h 28m 40s	+35° 50.8'	7.0	11:25	19:29	03:33
M1	Crab Nebula	SNR	Tau	05h 34m 32s	+22° 00.8'	8.4	12:27	19:35	02:43
M42	Great Orion Nebula, Trapezium	Open+D Neb	Ori	05h 35m 16s	-05° 23.4'	4.0	13:48	19:36	01:24
M43	De Mairan's Nebula (Orion Nebula Extension)	D Neb	Ori	05h 35m 31s	-05° 16.0'	9.0	13:48	19:36	01:24
M36	Pinwheel Cluster	Open	Aur	05h 36m 18s	+34° 08.3'	6.5	11:41	19:37	03:32
M78	NGC2068	D Neb	Ori	05h 46m 45s	+00° 04.8'	8.0	13:44	19:47	01:50
M37	Auriga Salt-and-pepper Cluster, January Salt-and-pepper Cluster	Open	Aur	05h 52m 18s	+32° 33.2'	6.0	12:04	19:53	03:41
M35	NGC2168	Open	Gem	06h 09m 00s	+24° 21.0'	5.5	12:53	20:09	03:26
M41	Little Beehive	Open	CMA	06h 46m 01s	-20° 45.3'	5.0	15:44	20:46	01:49
M50	Heart-shaped Cluster	Open	Mon	07h 02m 42s	-08° 23.0'	7.0	15:24	21:03	02:43
M47	NGC2422	Open	Pup	07h 36m 35s	-14° 29.0'	4.5	16:15	21:37	02:59

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ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M46	NGC2437	Open	Pup	07h 41m 46s	-14° 48.6'	6.5	16:21	21:42	03:03
M93	NGC2447	Open	Pup	07h 44m 30s	-23° 51.4'	6.5	16:53	21:45	02:37
M48	NGC2548	Open	Hya	08h 13m 43s	-05° 45.0'	5.5	16:27	22:14	04:01
M44	Beehive Cluster	Open	Cnc	08h 40m 24s	+19° 40.0'	4.0	15:41	22:41	05:41
M67	King Cobra	Open	Cnc	08h 51m 18s	+11° 48.0'	7.5	16:16	22:52	05:28
M81	Bode's Galaxy	Galaxy	UMa	09h 55m 33s	+69° 03.9'	7.8	Circ	23:56	Circ
M82	Cigar Galaxy	Galaxy	UMa	09h 55m 53s	+69° 40.8'	9.2	Circ	23:56	Circ
M95	NGC3351	Galaxy	Leo	10h 43m 58s	+11° 42.2'	10.6	18:09	00:44	07:20
M96	NGC3368	Galaxy	Leo	10h 46m 46s	+11° 49.2'	10.1	18:11	00:47	07:23
M105	NGC3379	Galaxy	Leo	10h 47m 50s	+12° 34.9'	10.5	18:10	00:48	07:27
M108	NGC3556	Galaxy	UMa	11h 11m 31s	+55° 40.4'	10.6	Circ	01:12	Circ
M97	Owl Nebula	P Neb	UMa	11h 14m 48s	+55° 01.1'	12.0	Circ	01:15	Circ
M65	Leo Triplet	Galaxy	Leo	11h 18m 56s	+13° 05.5'	10.1	18:39	01:19	07:59
M66	Leo Triplet	Galaxy	Leo	11h 20m 15s	+12° 59.4'	9.7	18:41	01:21	08:00
M109	NGC3992	Galaxy	UMa	11h 57m 36s	+53° 22.4'	10.6	15:10	01:58	12:46
M98	NGC4192	Galaxy	Com	12h 13m 48s	+14° 54.0'	10.9	19:29	02:14	09:00
M99	Virgo Cluster	Galaxy	Com	12h 18m 50s	+14° 25.0'	10.4	19:35	02:19	09:03
M106	NGC42583	Galaxy	CVn	12h 18m 58s	+47° 18.2'	9.1	16:59	02:19	11:40
M61	Swelling Spiral	Galaxy	Vir	12h 21m 55s	+04° 28.3'	10.1	20:07	02:22	08:38
M40	Winnecke 4	Dbl+Asterism	UMa	12h 22m 12s	+58° 05.0'	8.7	Circ	02:23	Circ
M100	Mirror of M99	Galaxy	Com	12h 22m 55s	+15° 49.3'	10.1	19:35	02:23	09:12
M84	NGC4374	Galaxy	Vir	12h 25m 04s	+12° 53.2'	10.2	19:46	02:26	09:05
M85	NGC4382	Galaxy	Com	12h 25m 24s	+18° 11.4'	10.0	19:30	02:26	09:21
M86	NGC4406	Galaxy	Vir	12h 26m 12s	+12° 56.7'	9.9	19:47	02:27	09:06
M49	NGC4472	Galaxy	Vir	12h 29m 47s	+08° 00.0'	9.3	20:05	02:30	08:55
M87	Smoking Gun, Virgo A	Galaxy	Vir	12h 30m 49s	+12° 23.4'	9.6	19:53	02:31	09:09
M88	NGC4501	Galaxy	Com	12h 31m 59s	+14° 25.2'	10.2	19:49	02:32	09:16
M91	Missing Messier Object	Galaxy	Com	12h 35m 27s	+14° 29.7'	10.9	19:52	02:36	09:20
M89	NGC4552	Galaxy	Vir	12h 35m 40s	+12° 33.3'	10.9	19:58	02:36	09:14
M90	NGC4569	Galaxy	Vir	12h 36m 50s	+13° 09.7'	10.2	19:57	02:37	09:17
M58	NGC4579	Galaxy	Vir	12h 37m 44s	+11° 49.1'	10.4	20:02	02:38	09:14
M68	NGC4590	Globular	Hya	12h 39m 28s	-26° 44.5'	9.0	21:58	02:40	07:22
M104	Sombrero Galaxy	Galaxy	Vir	12h 39m 59s	-11° 37.3'	9.2	21:10	02:40	08:11
M59	NGC4621	Galaxy	Vir	12h 42m 02s	+11° 38.7'	10.7	20:07	02:42	09:18
M60	NGC4649	Galaxy	Vir	12h 43m 40s	+11° 33.1'	9.8	20:09	02:44	09:19
M94	Croc's Eye Galaxy	Galaxy	CVn	12h 50m 53s	+41° 07.1'	8.9	18:18	02:51	11:25
M64	Black Eye Galaxy	Galaxy	Com	12h 56m 44s	+21° 41.0'	9.3	19:50	02:57	10:04

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ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M53	NGC5024	Globular	Com	13h 12m 55s	+18° 10.1'	8.5	20:18	03:13	10:09
M63	Sunflower Galaxy	Galaxy	CVn	13h 15m 49s	+42° 01.7'	9.3	18:37	03:16	11:55
NGC5139	Omega Centauri	Globular	Cen	13h 26m 48s	-47° 29.0'	3.6	00:37	03:27	06:18
NGC5169		Galaxy	CVn	13h 28m 10s	+46° 40.3'	14.0	18:14	03:29	12:43
NGC5204		Galaxy	UMa	13h 29m 36s	+58° 25.1'	11.3	Circ	03:30	Circ
M51	Whirlpool Galaxy,	Galaxy	CVn	13h 29m 52s	+47° 11.7'	8.9	18:11	03:30	12:50
Arp85	M51B	Galaxy	CVn	13h 29m 58s	+47° 16.0'	9.6	18:10	03:30	12:51
NGC5182		Galaxy	Hya	13h 30m 41s	-28° 09.0'	13.0	22:55	03:31	08:08
NGC5214		Galaxy	CVn	13h 32m 49s	+41° 52.3'	14.0	18:55	03:33	12:11
M83	So. Pinwheel Galaxy	Galaxy	Hya	13h 37m 00s	-29° 51.8'	8.0	23:08	03:37	08:07
HR5144	HD119055	Triple	Boo	13h 40m 40s	+19° 57.3'	5.8	20:40	03:41	10:42
NGC5283		Galaxy	Dra	13h 41m 06s	+67° 40.3'	14.0	Circ	03:42	Circ
M3	NGC5272	Globular	CVn	13h 42m 11s	+28° 22.5'	7.0	20:12	03:43	11:14
M101	Pinwheel Galaxy	Galaxy	UMa	14h 03m 13s	+54° 20.9'	8.2	16:44	04:04	15:24
NGC5461	III-788	Neb	UMa	14h 03m 42s	+54° 19.0'		16:46	04:04	15:23
NGC5485		Galaxy	UMa	14h 07m 11s	+55° 00.0'	11.5	Circ	04:08	Circ
NGC5460		Open	Cen	14h 07m 27s	-48° 20.6'	5.6	01:26	04:08	06:50
NGC5500		Galaxy	Boo	14h 10m 15s	+48° 32.7'	14.0	18:38	04:11	13:44
IC991		Galaxy	Vir	14h 17m 48s	-13° 52.3'	13.0	22:55	04:18	09:42
HR5362	HD125383	Dbl	Lup	14h 20m 10s	-43° 03.5'	5.6	00:57	04:21	07:44
IC4406	Retina Nebula	P Neb	Lup	14h 22m 26s	-44° 09.0'	11.0	01:06	04:23	07:39
HR5409	HD126868	Triple	Vir	14h 28m 12s	-02° 13.6'	4.8	22:32	04:29	10:25
NGC5669		Galaxy	Boo	14h 32m 44s	+09° 53.4'	12.0	22:03	04:33	11:04
NGC5689		Galaxy	Boo	14h 35m 30s	+48° 44.5'	11.9	19:01	04:36	14:11
M102	Spindle Galaxy	Galaxy	Dra	15h 06m 30s	+55° 45.7'	10.8	Circ	05:07	Circ
NGC5875		Galaxy	Boo	15h 09m 13s	+52° 31.6'	13.0	18:41	05:10	15:39
NGC5907	Splinter Galaxy	Galaxy	Dra	15h 15m 54s	+56° 19.7'	11.4	Circ	05:16	Circ
NGC5882		P Neb	Lup	15h 16m 50s	-45° 38.9'	11.0	02:12	05:17	08:23

And - Andromeda
Ant - Antlia
Aps - Apus
Aql - Aquila
Aqr - Aquarius
Ara - Ara
Ari - Aries
Aur - Auriga
Boo - Bootes
Cae - Caelum
Cam - Camelopardis
Cap - Capricornus
Car - Carina
Cas - Cassiopeia
Cen - Centaurus

Cep - Cepheus
Cet - Cetus
Cha - Chamaeleon
Cir - Circinus
CMA - Canis Major
CMi - Canis Minor
Cnc - Cancer
Col - Columba
Com - Coma Berenices
CrA - Corona Australis
CrB - Corona Borealis
Crt - Crater
Cru - Crux
Crv - Corvus
CVn - Canes Venatici

Cyg - Cygnus
Del - Delphinus
Dor - Dorado
Dra - Draco
Equ - Equuleus
Eri - Eridanus
For - Fornax
Gem - Gemini
Gru - Grus
Her - Hercules
Hor - Horologium
Hya - Hydra
Hyi - Hydrus
Ind - Indus
Lac - Lacerta

Leo - Leo
Lep - Lepus
Lib - Libra
LMi - Leo Minor
Lup - Lupus
Lyn - Lynx
Lyr - Lyra
Men - Mensa
Mic - Microscopium
Mon - Monoceros
Mus - Musca
Nor - Norma
Oct - Octans
Oph - Ophiuchus
Ori - Orion

Pav - Pavo
Peg - Pegasus
Per - Perseus
Phe - Phoenix
Pic - Pictor
PsA - Pisces Austrinus
Psc - Pisces
Pup - Puppis
Pyx - Pyxis
Ret - Reticulum
Scl - Sculptor
Sco - Scorpius
Sct - Scutum
Ser - Serpens
Sex - Sextans

Sge - Sagitta
Sgr - Sagittarius
Tau - Taurus
Tel - Telescopium
TrA - Triangulum
Australe
Tri - Triangulum
Tuc - Tucana
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