

Volume 41.10

October 2021

Desert Sky Observer

Antelope Valley Astronomy Club



Upcoming Events

October 2: DSSP -- Red Cliffs
October 8: Club Business Meeting
October 16: The International Observe the Moon Night
October 23: Scary Science 3pm Moon Walk 6:30 pm@ PDW
October 29: College of the Canyons Star Party -TBA

Every clear night: Personal Star Party

November 6: DSSP -- Saddleback SP
November 12 : Club Meeting
November 13: Moon Walk 5:30 pm@ PDW

December 4: Christmas Party
December 11: Moon Walk 5:30 pm @ PDW



AVAC Calendar

Desert Sky Observer

www.avastronomyclub.org

October 2021



Board Members

President: Darrell Bennett (661) 220-0122
president@avastronomyclub.org

Vice-President: Matt Leone (661) 713-1894
vice-president@avastronomyclub.org

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

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

Appointed Positions

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

Equipment & Library:
John Van Evera 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 Darrell Bennett

Well Hello Everyone,

Last month our Dark Sky Party at Chuchupate was canceled because of all the fires up north so the Forest Service shut down all of the National Forests. Unfortunately, this meant no star party at Chuchupate.

On September 10th we had our second Club Meeting of the year. I think it went better than the first one. We had a few members show up and it was good to see new faces in the club. We didn't have a speaker for that meeting but Jeremy had 2 new shows to show us.

On September 11th we had 2 events going on at the same time. The Lunar Club at Judy's house and a public Star Party at Tehachapi Airport. I had to cancel the Lunar Star Party because I was the only one going to it. While everyone else went to the Tehachapi Star Party.

On September 25th we were at Prime Desert Woodlands for our monthly Moon Walk; 70 people showed up but, it looked like more than that.

Our next Star Party will be at Red Cliffs on October 2nd. It is one of my favorites because of the dark skies there. On October 8th will be our annual Club Business Meeting to vote for Executive Board for AVAC for 2022. October 23rd at Prime Desert Woodlands is the Scary Science with Jeremy at 3:00 pm, followed by our monthly Moon Walk at 6:30 pm. So, come on out for the Star Parties and vote for the new Board members.

Until then, keep looking up

Darrell

On The Cover

A cataclysmic cosmic collision takes centre stage in this Picture of the Week. The image features the interacting galaxy pair IC 1623, which lies around 275 million light-years away in the constellation Cetus (The Whale). The two galaxies are in the final stages of merging, and astronomers expect a powerful inflow of gas to ignite a frenzied burst of star formation in the resulting compact starburst galaxy.

This interacting pair of galaxies is a familiar sight; Hubble captured IC 1623 in 2008 using two filters at optical and infrared wavelengths using the Advanced Camera for Surveys. This new image incorporates new data from Wide Field Camera 3, and combines observations taken in eight filters spanning infrared to ultraviolet wavelengths to reveal the finer details of IC 1623. Future observations of the galaxy pair with the NASA/ESA/CASA James Webb Space Telescope will shed more light on the processes powering extreme star formation in environments such as IC 1623.

Credit:

ESA/Hubble & NASA, R. Chandar

From the Secretary

By Rose Moore

We have a dark sky star party on Saturday Oct. 2nd at Red Cliffs Natural Preserve, on the southern edge of Red Rock Canyon State Park, weather permitting, members may arrived mid-late afternoon to set up their telescopes. You are permitted to bring drinks and snacks. There is no water or shade at Red Cliffs, but there are vault toilets and picnic tables. This is an overnight star party, or you may leave early, but if staying overnight we must leave the area by around 8am. Cell service is unreliable.

Our club meeting on Friday Oct. 8th at 7pm, is our Annual Business Meeting. We will have an election of Board officers. You should have received an email on 9/22 regarding the business meeting. Please attend to nominate a member, and cast your vote. This meeting is also a good time to bring up any concerns or questions you have about governing the club. Jeremy will do a dome presentation after the Business meeting.

On Saturday Oct. 23rd, Jeremy will be presenting 'Scary Science' at 3pm in the Clifford Center at Prime Desert Woodland Preserve. This event is free for both children and adults.

Later on Oct. 23rd, we have a Prime Desert Moon Walk with Jeremy at 6:30pm, weather permitting. We will need members with telescopes to show the night sky, or you may come and take the walk through the preserve.

We have a public star party at College of the Canyons on Friday Oct. 29th at 6:30pm. Further information will be coming as we get closer to the date. This event is one that the AVAC has participated in, usually twice a year, before the Covid restrictions. Stay tuned!

We will be having a dark sky star party on Saturday Nov. 6th at Saddleback Butte State Park. There will be a picnic and potluck before observing. Further information will be sent out later in October. There will be a sign up sheet for this event, so that the Board is aware of how many will attend and be able to prepare.

Our Christmas Party will be on Saturday Dec. 4th at 6:00 pm at Gino's Restaurant in the Lancaster Marketplace. There will be a sign up sheet started at October's meeting, and we will need a final head count by Nov. 15th. Cost will be \$30 per member, and for each guest. The buffet will be the traditional Italian buffet: chicken parmigiana, meat lasagna, penne pasta primavera, salad, garlic bread, dessert, ice tea, coffee, water. Soft drinks and alcoholic drinks will be extra. Webmaster Steve will be setting up a PayPal link for payment (if you want to pay via PayPal). More information coming in an email.

See you there! Rose

Member Scope For Sale

Member Duane Lewis is selling his 9.25 inch Celestron CGEM OTA with the tripod, CGE mount, counterweights, one 1.25" 20mm Plossl eyepiece, a 1.25" diagonal and a 2" diagonal, telrad mount, and a Denkmeir (unknown model) binocular viewer. The OTA was tuned up by member Don Bryden before he moved. It has not been used since. Price is \$1200. Duane is unable to have this set up for viewing because of lack of space. So arrangements will have to be made for viewing the scope and accessories. For more info please contact Duane by email only: gurba1826@gmail.com -- or contact Rose by email: rmorion@bak.rr.com

Weird Ways to Observe the Moon

David Prosper, NASA Night Sky Network

International Observe the Moon Night is on October 16 this year— but you can observe the Moon whenever it's up, day or night! While binoculars and telescopes certainly reveal incredible details of our neighbor's surface, bringing out dark seas, bright craters, and numerous odd fissures and cracks, these tools are not the only way to observe details about our Moon. There are more ways to observe the Moon than you might expect, just using common household materials.

Put on a pair of sunglasses, especially **polarized sunglasses**! You may think this is a joke, but the point of polarized sunglasses is to dramatically reduce glare, and so they allow your eyes to pick out some lunar details! Surprisingly, wearing sunglasses even helps during daytime observations of the Moon.

One unlikely tool is the humble **plastic bottle cap**! John Goss from the Roanoke Valley Astronomical Society shared these directions on how to make your own bottle cap lunar viewer, which was also suggested to him by Fred Schaaf many years ago as a way to also view the thin crescent of Venus when close to the Sun:

“The full Moon is very bright, so much that details are overwhelmed by the glare. Here is an easy way to see more! Start by drilling a 1/16-inch (1.5 mm) diameter hole in a plastic soft drink bottle cap. Make sure it is an unobstructed, round hole. Now look through the hole at the bright Moon. The image brightness will be much dimmer than normal – over 90% dimmer – reducing or eliminating any lunar glare. The image should also be much sharper because the bottle cap blocks light from entering the outer portion of your pupil, where imperfections of the eye's curving optical path likely lie.” Many report seeing a startling amount of lunar detail!

You can **project the Moon**! Have you heard of a “Sun Funnel”? It's a way to safely view the Sun by projecting the image from an eyepiece to fabric stretched across a funnel mounted on top. It's easy to make at home, too – directions are here: bit.ly/sunfunnel. Depending on your equipment, a Sun Funnel can view the Moon as well as the Sun— a full Moon gives off more than enough light to project from even relatively small telescopes. Large telescopes will project the full Moon and its phases, with varying levels of detail; while not as crisp as direct eyepiece viewing, it's still an impressive sight! You can also mount your smartphone or tablet to your eyepiece for a similar Moon-viewing experience, but the funnel doesn't need batteries.

Of course, you can join folks in person or online for a celebration of our Moon on October 16, with International Observe the Moon Night – find details at moon.nasa.gov/observe. NASA has big plans for a return to the Moon with the Artemis program, and you can find the latest news on their upcoming lunar explorations at nasa.gov.



Sun Funnels in action! Starting clockwise from the bottom left, a standalone Sun Funnel; attached to a small refractor to observe the transit of Mercury in 2019; attached to a large telescope in preparation for evening lunar observing; projection of the Moon onto a funnel from a medium-size scope (5 inches).

Safety tip: NEVER use a large telescope with a Sun Funnel to observe the Sun, as they are designed to project the Sun using small telescopes only. Some eager astronomers have melted their Sun Funnels, and parts of their own telescopes, by pointing them at the Sun - large telescopes create far too much heat, sometimes within seconds! However, large instruments are safe and ideal for projecting the much dimmer Moon. Small telescopes can't gather enough light to decently project the Moon, but larger scopes will work.



International OBSERVE
THE MOON NIGHT 2021

SATURDAY
OCTOBER 16TH



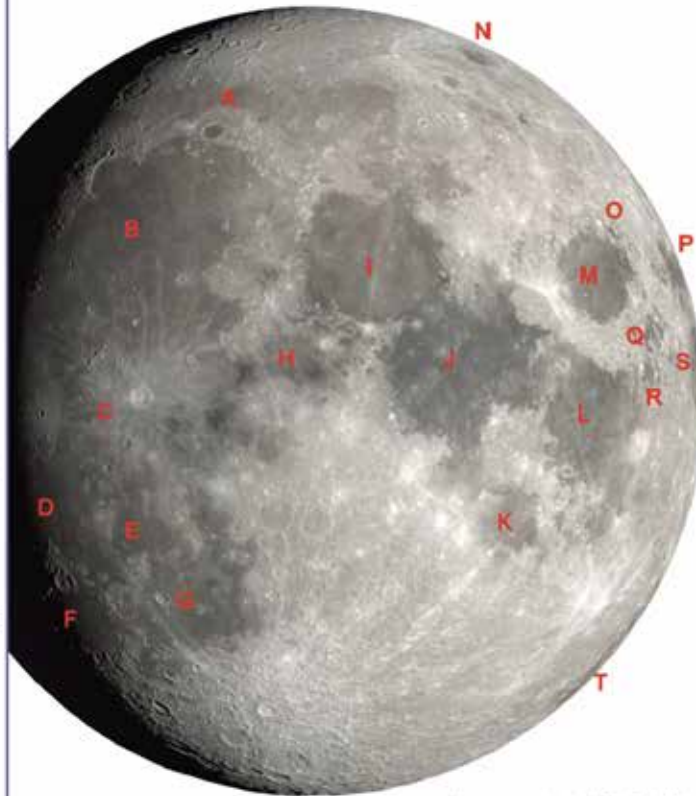
NORTHERN HEMISPHERE MOON MAP WITH LUNAR MARIA (SEAS OF BASALT)

Moon Map

This map was created for International Observe the Moon Night 2021. It depicts the Moon as it will appear from the northern hemisphere at approximately 11:00 PM EDT on October 16, 2021 (3:00 AM UTC on October 17).

Lunar Maria (Seas of Basalt)

You can see a number of maria tonight. Once thought to be seas of water, these are actually large, flat plains of solidified basaltic lava. They can be viewed in binoculars or even with the unaided eye. Tonight, you may be able to identify 18 maria on the Moon. This includes four seas along the eastern edge that are often hard to see. Because of libration, a slight apparent wobble by the Moon in its orbit around Earth, tonight we get to peek slightly around the northeast edge of the Moon, glimpsing a sliver of terrain normally on the Moon's far side.



Map generated with NASA's Dial-A-Moon
(<https://svs.gsfc.nasa.gov/4874>)



- | | | |
|--|--|---------------------------------|
| A. Mare Frigoris (Sea of Cold) | H. Mare Vaporum (Sea of Vapors) | O. Mare Anguis (Serpent Sea) |
| B. Mare Imbrium (Sea of Rains) | I. Mare Serenitatis (Sea of Serenity) | P. Mare Marginis (Border Sea) |
| C. Mare Insularum (Sea of Isles) | J. Mare Tranquillitatis (Sea of Tranquility) | Q. Mare Undarum (Sea of Vines) |
| D. Oceanus Procellarum (Ocean of Storms) | K. Mare Nectaris (Sea of Nectar) | R. Mare Spumans (Sea of Foam) |
| E. Mare Cognitum (Known Sea) | L. Mare Fecunditatis (Sea of Fertility) | S. Mare Strythii (Stryth's Sea) |
| F. Mare Humorum (Sea of Moisture) | M. Mare Crisium (Sea of Crises) | T. Mare Australe (Southern Sea) |
| G. Mare Nubium (Sea of Clouds) | N. Mare Humboldtianum (Humboldt's Sea) | |

MOON.NASA.GOV/OBSERVE

#ObserveTheMoon

You can download and print NASA's observer's map of the Moon for International Observe the Moon Night! This map shows the view from the Northern Hemisphere on October 16 with the seas labeled, but you can download both this map and one of for Southern Hemisphere observers, at: bit.ly/moonmap2021 The maps contain multiple pages of observing tips, not just this one.

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

Sodium May Make Asteroid Phaethon Fizzle

The Geminid meteor shower is best known for the reliable show it puts on during the winter holiday season. But the event is also unique because it stems not from a comet but from an asteroid: 3200 Phaethon. Phaethon's true nature has puzzled astronomers for over 10 years, ..(continued at <https://astronomy.com/news/2021/09/sodium-may-make-asteroid-phaethon-fizzle>)



Where To See The Next Solar Eclipse

Without question, Earth's most spectacular naturally occurring event is a total solar eclipse. This is only possible because the Sun and Moon take up the same amount of space in our sky, allowing the Moon to perfectly block out the Sun. Experience such a breathtaking moment even once and you'll never forget it. Astronomers have calculated when eclipses will occur for the next millennium and beyond. . . (Continued at <https://astronomy.com/magazine/news/2021/09/where-to-see-the-next-solar-eclipse>)



Something Big Just Hit Jupiter

In 1994, the Comet Shoemaker-Levy 9 (SL9) impacted Jupiter, which had captured the comet shortly before (and broken apart by its gravity). The event became a media circus as it was the first direct observation of an extraterrestrial collision of Solar System objects. The impact was so powerful that it left scars that endured for months and were more discernible than Jupiter's Great Red Spot. Since then, astronomers have observed multiple objects impacting Jupiter,. . . .(continued at <https://phys.org/news/2021-09-big-jupiter.html>)



Hubble Finds Early, Massive Galaxies Running On Empty

When the universe was about 3 billion years old, just 20% of its current age, it experienced the most prolific period of star birth in its history. But when NASA's Hubble Space Telescope and the Atacama Large Millimeter/submillimeter Array (ALMA) in northern Chile gazed toward cosmic objects in this period, they found something odd: (continued at <https://www.sciencedaily.com/releases/2021/09/210922121920.htm>)



Hydrogen-Burning White Dwarfs Enjoy Slow Aging

The prevalent view of white dwarfs as inert, slowly cooling stars has been challenged by observations from the NASA/ESA Hubble Space Telescope. An international group of astronomers have discovered the first evidence that white dwarfs can slow down their rate of ageing by burning hydrogen on their surface. . . .(continued at <https://www.sciencedaily.com/releases/2021/09/210906111316.htm>)



Astronomers Detect Clouds On An Exoplanet, And Even Measure Their Altitude

The search for planets beyond our Solar System has grown immensely during the past few decades. To date, 4,521 extrasolar planets have been confirmed in 3,353 systems, with an additional 7,761 candidates awaiting confirmation.. . . (continued at <https://www.universetoday.com/152704/astrophysicists-detect-clouds-on-an-exoplanet-and-even-measure-their-altitude/#more-152704>)



A Tiny, Inexpensive Satellite Will Be Studying The Atmospheres Of Hot Jupiters

The Colorado Ultraviolet Transit Experiment (aptly nicknamed CUTE) is a new, NASA-funded mission that aims to study the atmospheres of massive, superheated exoplanets – known as hot Jupiters – around distant stars. The miniaturized satellite, . . . (continued at <https://www.universetoday.com/152713/a-tiny-inexpensive-satellite-will-be-studying-the-atmospheres-of-hot-jupiters/#more-152713>)



Space News

News from around the Net

James Webb Space Telescope: How, When, And Why It's Launching

The largest orbital telescope ever made will allow astronomers to study the atmospheres of alien planets, learn about how stars form in the Milky Way and peer into the farthest reaches of the universe. The James Webb Space Telescope is scheduled to head to space on Dec. 18, 2021. With it, astronomers hope to find the first galaxies to form in the universe, will search for Earthlike atmospheres around other planets and accomplish many other scientific goals..

. (continued at <https://astronomy.com/news/2021/09/james-webb-space-telescope-how-when-and-why-its-launching>)



NASA Announces Moon Landing Site For Viper Mission

NASA's VIPER rover will land and search for water ice in the unexplored Nobile region at the Moon's south pole. The U.S. is about to return to the Moon in a big way. NASA has announced one of the first steps in the next generation of lunar exploration: a landing site for the Volatiles Investigating Polar Exploration Rover (VIPER). The site is on the western edge of Nobile crater, near the lunar south pole. . . . (continued at <https://skyandtelescope.org/astronomy-news/nasa-announces-moon-landing-site-for-viper-mission/>)



Perseverance Successfully Grabs First Mars Samples (Updates)

After a rocky first start, Perseverance hit pay dirt on the second try. The rover collected two samples recording ancient volcanic eruptions and groundwater interaction. After a tense start to the sample collection campaign for NASA's Perseverance rover on August 5th, researchers finally confirmed on September 6th that the rover has successfully collected two pencil-size cores from Jezero Crater on Mars. The holes were drilled September 1st and 7th, respectively. "NASA has a history of setting ambitious goals and then accomplishing them, . . . (continued at <https://skyandtelescope.org/astronomy-news/perseverance-successfully-grabs-first-mars-sample/>)



How Could We Light Our Cities And Still See The Night Sky?

The night sky is a part of humanity's natural heritage. Gazing up at the heavens is a unifying act, performed by almost every human that's ever lived. Haven't you looked up at the night sky and felt it ignite your sense of wonder? But you can't see much night sky in a modern city. And the majority of humans live in cities now. How can we regain our heritage? . . . (continued at <https://www.universetoday.com/152625/how-could-we-light-our-cities-and-still-see-the-night-sky/>)



Astronomers See Carbon-Rich Nebulae Where Planets Are Forming

Understanding the birth of a planet is a challenging puzzle. We know that planets form inside clouds of gas and dust that surround new stars, known as protoplanetary disks. But grasping exactly how that process works – connecting the dots between a dust cloud and a finished planet – is not easy. An international team of astronomers is attempting to unlock some of those secrets, . . . (continued at <https://www.universetoday.com/152616/astronomers-see-carbon-rich-nebulae-where-planets-are-forming/>)



A New Understanding Of Galaxy Evolution With NASA's Roman Space Telescope

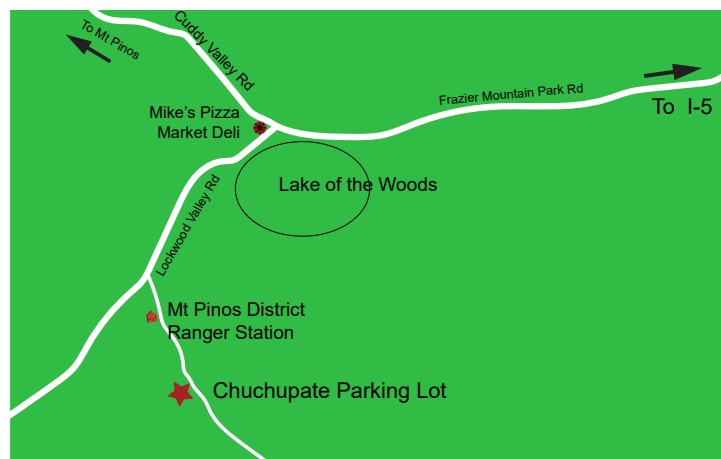
When NASA's Nancy Grace Roman Space Telescope launches in the mid-2020s, it will revolutionize astronomy by providing a panoramic field of view at least 100 times greater than Hubble's at similar image sharpness, or resolution. The Roman Space Telescope will survey the sky up to thousands of times faster than can be done with Hubble. . . . (continued at . . . <https://phys.org/news/2021-09-galaxy-evolution-nasa-roman-space.html>)



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.

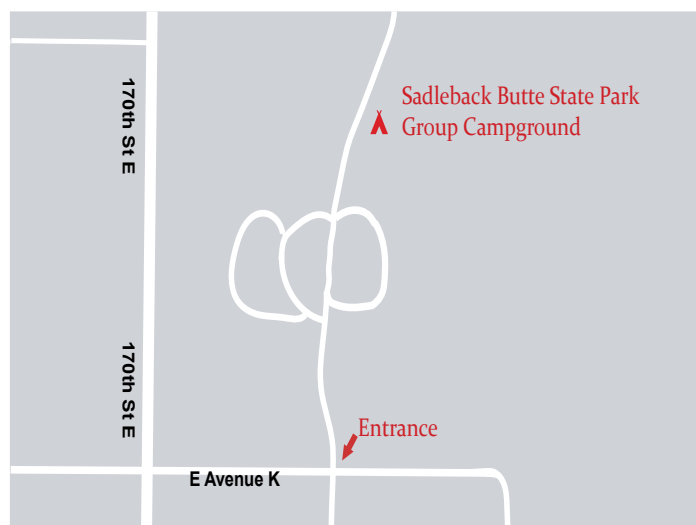


The Red Cliffs Natural Area is part of **Red Rock Canyon State Park** is a day use area and is not for use by the public after dark. The Club gets a special permit for a star party and pays a fee.

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** starts October in Virgo and crosses into Libra at the end of the month.

Mercury starts the month too close to the Sun to be seen. On the 9th it achieves inferior conjunction. Just 16 days later Mercury arrives at greatest elongation west, the tightest elongation of the year at just 18.4° , probably far too close to be seen in the early morning Sun.

Venus achieves greatest elongation east from the Sun of 47° on the 29th. The 3 day old Moon passes 3.5° to the north on the 9th. It's in conjunction, 1.5° north of Antares on the 16th.

Mars is far too close to the Sun to be seen. Mars is at solar conjunction on the 8th.

Jupiter continues its retrograde motion until the 18th, when it stalls and reaches its second stationary point in Capricorn. It slowly resumes prograde motion thereafter. The 75% waxing Moon passes by on the 15th 4° to the south.

Saturn slows its retrograde motion to a complete standstill on the 11th as it reaches its second stationary point in Capricorn. After that, it slowly resumes its prograde motion east. On the 13th the 60% waxing Moon slides past 4.5° to the south.

Uranus is moving west in central Aries at mag 5.7. The full Moon zips by 1.5° to the south on the mid-day of the 24th.

Neptune will spend the month almost stationary in northeast Aquarius at mag 7.8. The 90% waxing Moon will pass 5° south in the early morning of the 17th.

Pluto spends the month stationary in eastern Sagittarius at mag 14.3.

Moon Phases



Sun and Moon Rise and Set*

Date	Moonrise	Moonset	Sunrise	Sunset
10/1/2021	01:31	16:15	06:47	18:36
10/5/2021	05:51	18:29	06:50	18:30
10/10/2021	11:47	21:43	06:54	18:23
10/15/2021	16:12	01:56	06:58	18:17
10/20/2021	18:32	07:00	07:02	18:11
10/25/2021	21:31	11:47	07:07	18:05
10/30/2021	01:20	15:23	07:11	18:00

Planet Data*

October 1

	Rise	Transit	Set	Mag	Phase%
Mercury	08:08	13:34	19:00	1.87	13.6
Venus	10:31	15:31	15:33	-4.20	61.7
Mars	06:59	12:51	18:43	1.67	99.9
Jupiter	16:31	21:50	03:13	-2.74	99.5
Saturn	15:41	20:47	01:57	0.47	99.8

October 15

	Rise	Transit	Set	Mag	Phase%
Mercury	06:05	11:55	17:45	1.60	13.8
Venus	10:53	15:42	20:30	-4.30	55.8
Mars	06:48	12:30	18:12	1.65	99.9
Jupiter	15:35	20:53	02:16	-2.66	99.3
Saturn	14:45	19:51	01:01	0.54	99.7

October 30

	Rise	Transit	Set	Mag	Phase%
Mercury	05:48	11:35	17:21	-0.82	77.2
Venus	11:10	15:51	20:32	-4.42	48.6
Mars	06:37	12:08	17:40	1.65	99.8
Jupiter	14:36	19:56	01:19	-2.55	99.0
Saturn	13:47	18:54	24:00	0.60	99.8

*All time mentioned are local

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

October 2021

This circular star chart displays the Northern Hemisphere of the sky, centered on Polaris. The chart is oriented with 'Facing North' at the top, 'Facing South' at the bottom, 'Facing East' on the left, and 'Facing West' on the right. The Ecliptic is shown as a red dashed line, and the Equator is shown as a blue dashed line. Various constellations are labeled, including Ursa Major, Ursa Minor, Perseus, Cassiopeia, Cygnus, Lyra, Hercules, Boötes, Corona Borealis, Corona Australis, Sagittarius, Microscopium, Telescopium, Grus, Piscis Austrinus, Sculptor, Aquarius, Equuleus, Delphinus, Sagitta, Vulpecula, Aquila, Ophiuchus, Serpens, Corona Borealis, Boötes, Canes Venatici, Auriga, Camelopardalis, Taurus, Perseus, Triangulum, Aries, Pisces, Cetus, and Microscopium. Key stars are labeled in blue, including Polaris, Vega, Altair, Arcturus, and many others. Messier objects (M1 through M27) are marked with circles and labeled in blue. A red dot labeled 'On The Cover' is located near the star Mira. The chart is a detailed representation of the night sky, showing the positions of stars and constellations relative to the Earth's horizon.

Powered by: Heavens-Above.com

Desert Sky Observer

www.avastronomyclub.org

October 2021

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 2, 2021. The list is sorted by the transit time of the object.

ID	Common Name	Type		RA	Dec	Mag	Rise	Transit	Set
M59		Galaxy	Vir	12h 42m 02s	+11° 38.7'	10.7	06:15	12:50	19:25
M60		Galaxy	Vir	12h 43m 40s	+11° 33.1'	9.8	06:17	12:52	19:27
M94	Croc's Eye Galaxy	Galaxy	CVn	12h 50m 53s	+41° 07.1'	8.9	04:28	12:59	21:30
M64	Black Eye Galaxy, Sleeping Beauty Galaxy	Galaxy	Com	12h 56m 44s	+21° 41.0'	9.3	05:59	13:05	20:11
M53		Globular	Com	13h 12m 55s	+18° 10.1'	8.5	06:26	13:21	20:16
M63	Sunflower Galaxy	Galaxy	CVn	13h 15m 49s	+42° 01.7'	9.3	04:47	13:24	22:01
NGC5139	Omega Centauri	Globular	Cen	13h 26m 48s	-47° 29.0'	3.6	10:42	13:35	16:28
NGC5169		Galaxy	CVn	13h 28m 10s	+46° 40.3'	14.0	04:25	13:36	22:48
NGC5204		Galaxy	UMa	13h 29m 36s	+58° 25.1'	11.3	Circ	13:38	Circ
M51	Whirlpool Galaxy, Question Mark Galaxy	Galaxy	CVn	13h 29m 52s	+47° 11.7'	8.9	04:22	13:38	22:54
Arp85	M51B	Galaxy	CVn	13h 29m 58s	+47° 16.0'	9.6	04:21	13:38	22:55
NGC5182		Galaxy	Hya	13h 30m 41s	-28° 09.0'	13.0	09:01	13:39	18:16
NGC5214		Galaxy	CVn	13h 32m 49s	+41° 52.3'	14.0	05:05	13:41	22:17
M83	Southern Pinwheel Galaxy	Galaxy	Hya	13h 37m 00s	-29° 51.8'	8.0	09:14	13:45	18:16
HR5144	1 Boo	Triple	Boo	13h 40m 40s	+19° 57.3'	5.8	06:48	13:49	20:49
NGC5283		Galaxy	Dra	13h 41m 06s	+67° 40.3'	14.0	Circ	13:49	Circ
M3		Globular	CVn	13h 42m 11s	+28° 22.5'	7.0	06:20	13:50	21:20
NGC5286	C84	Globular	Cen	13h 46m 24s	-51° 22.0'	7.6	11:41	13:55	16:08
NGC5292		Galaxy	Cen	13h 47m 40s	-30° 56.4'	14.0	09:29	13:56	18:23
NGC5356		Galaxy	Vir	13h 54m 59s	+05° 20.0'	14.0	07:46	14:03	20:20
NGC5363		Galaxy	Vir	13h 56m 07s	+05° 15.2'	10.2	07:47	14:04	20:21
NGC5447	III-787	Neb	UMa	14h 02m 29s	+54° 16.3'		03:06	14:11	01:15
M101	Pinwheel Galaxy	Galaxy	UMa	14h 03m 13s	+54° 20.9'	8.2	03:04	14:11	01:18
NGC5461	III-788	Neb	UMa	14h 03m 42s	+54° 19.0'		03:06	14:12	01:18
NGC5485		Galaxy	UMa	14h 07m 11s	+55° 00.0'	11.5	02:33	14:15	01:58
NGC5460		Open	Cen	14h 07m 27s	-48° 20.6'	5.6	11:30	14:16	17:01
NGC5500		Galaxy	Boo	14h 10m 15s	+48° 32.7'	14.0	04:49	14:18	23:48
IC991		Galaxy	Vir	14h 17m 48s	-13° 52.3'	13.0	09:02	14:26	19:50
HR5362		Dbl	Lup	14h 20m 10s	-43° 03.5'	5.6	11:02	14:28	17:54
IC4406	Retina Nebula	P Neb	Lup	14h 22m 26s	-44° 09.0'	11.0	11:12	14:31	17:49
HR5409		Triple	Vir	14h 28m 12s	-02° 13.6'	4.8	08:40	14:36	20:33
NGC5669		Galaxy	Boo	14h 32m 44s	+09° 53.4'	12.0	08:11	14:41	21:11
NGC5689		Galaxy	Boo	14h 35m 30s	+48° 44.5'	11.9	05:12	14:44	00:15
M102	Spindle Galaxy	Galaxy	Dra	15h 06m 30s	+55° 45.7'	10.8	Circ	15:15	Circ
NGC5875		Galaxy	Boo	15h 09m 13s	+52° 31.6'	13.0	04:55	15:17	01:40
NGC5907	Splinter Galaxy	Galaxy	Dra	15h 15m 54s	+56° 19.7'	11.4	Circ	15:24	Circ

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ID	Common Name	Type	Const	RA	Dec	Mag	Rise	Transit	Set
M5	NGC5904	Globular	Ser	15h 18m 33s	+02° 04.9'	7.0	09:18	15:27	21:35
Barnard228	B228	DkNeb	Lup	15h 44m 00s	-34° 30.0'		11:40	15:52	20:04
IC4593	White Eyed Pea	P Neb	Her	16h 11m 44s	+12° 04.3'	11.0	09:43	16:20	22:56
IC4592	Jabbah	Neb	Sco	16h 11m 59s	-19° 27.4'		11:13	16:20	21:27
M80	NGC6093	Globular	Sco	16h 17m 03s	-22° 58.5'	8.5	11:29	16:25	21:21
IC4601		Neb	Sco	16h 20m 18s	-20° 04.9'		11:23	16:28	21:34
Abell38		P Neb	Sco	16h 23m 17s	-31° 44.9'	11.7	12:08	16:31	20:55
M4	Cat's Eye	Globular	Sco	16h 23m 35s	-26° 31.5'	7.5	11:48	16:32	21:15
IC4603	Rho Ophiuchi Complex [1]	Neb	Oph	16h 25m 24s	-24° 28.0'		11:43	16:34	21:24
IC4604	Rho Ophiuchi Complex [2]	Neb	Oph	16h 25m 33s	-23° 26.5'		11:40	16:34	21:28
NGC6124	C75	Open	Sco	16h 25m 36s	-40° 40.0'	5.8	12:53	16:34	20:14
Abell39		P Neb	Her	16h 27m 33s	+27° 54.5'	12.9	09:07	16:36	00:04
IC4605		Neb	Sco	16h 30m 12s	-25° 06.8'		11:50	16:38	21:27
NGC6153		P Neb	Sco	16h 31m 31s	-40° 15.2'	12.0	12:57	16:40	20:23
NGC6181		Galaxy	Her	16h 32m 21s	+19° 49.5'	11.9	09:40	16:40	23:41
NGC6171		Globular	Oph	16h 32m 32s	-13° 03.1'	8.1	11:14	16:41	22:07
NGC6178		Open	Sco	16h 35m 47s	-45° 38.6'	7.2	13:36	16:44	19:52
NGC6193	C82	Open	Ara	16h 41m 18s	-48° 46.0'	5.2	14:08	16:49	19:31
M13	Great Hercules Cluster	Globular	Her	16h 41m 41s	+36° 27.5'	7.0	08:45	16:50	00:55
NGC6210	Turtle Planetary Nebula	P Neb	Her	16h 44m 30s	+23° 48.0'	9.0	09:39	16:53	00:06
Barnard44a	B44a	DkNeb	Sco	16h 44m 45s	-40° 20.0'		13:10	16:53	20:35
NGC6204		Open	Ara	16h 46m 09s	-47° 01.0'	8.2	13:57	16:54	19:51
M12	Gumball Globular	Globular	Oph	16h 47m 14s	-01° 56.8'	8.0	10:58	16:55	22:53
NGC6231	Table of Scorpius	Open	Sco	16h 54m 00s	-41° 48.0'	2.6	13:28	17:02	20:36
IC4628	Prawn Nebula	Neb	Sco	16h 56m 58s	-40° 27.3'		13:23	17:05	20:47
NGC6254		Globular	Oph	16h 57m 09s	-04° 05.9'	6.6	11:14	17:05	22:57
Barnard47	B47	DkNeb	Oph	16h 59m 42s	-22° 38.0'		12:11	17:08	22:05
M62	Flickering Globular	Globular	Oph	17h 01m 13s	-30° 06.7'	8.0	12:39	17:09	21:39
M19	NGC6273	Globular	Oph	17h 02m 38s	-26° 16.0'	8.5	12:26	17:11	21:55
Barnard51	B51	DkNeb	Oph	17h 04m 44s	-22° 15.0'		12:15	17:13	22:11
IC4637		P Neb	Sco	17h 05m 10s	-40° 53.1'	14.0	13:34	17:13	20:53
Barnard56	B56	DkNeb	Sco	17h 08m 48s	-32° 05.0'		12:55	17:17	21:39
Barnard59	B59,Pipe Nebula	DkNeb	Oph	17h 11m 23s	-27° 29.0'		12:40	17:20	22:00
NGC6302	C69,Bug Nebula	P Neb	Sco	17h 13m 42s	-37° 06.0'	9.6	13:22	17:22	21:21
Barnard251	B251	DkNeb	Oph	17h 13m 48s	-20° 09.0'		12:17	17:22	22:27
Barnard63	B63	DkNeb	Oph	17h 16m 00s	-21° 28.0'		12:23	17:24	22:25
M92	NGC6341	Globular	Her	17h 17m 07s	+43° 08.1'	7.5	08:41	17:25	02:09
M9	NGC6333	Globular	Oph	17h 19m 12s	-18° 31.0'	9.0	12:17	17:27	22:37
NGC6326		P Neb	Ara	17h 20m 46s	-51° 45.2'	12.0	15:21	17:29	19:37
Barnard256	B256	DkNeb	Oph	17h 22m 12s	-28° 49.0'		12:55	17:30	22:05

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ID		Type	Const	RA	Dec	Mag	Rise	Transit	Set
NGC6357	Lobster Nebula	Neb	Sco	17h 24m 43s	-34° 12.1'		13:20	17:33	21:46
IC4651		Open	Ara	17h 24m 52s	-49° 56.5'	6.9	15:03	17:33	20:03
Abell41		P Neb	Ser	17h 29m 04s	-15° 13.3'	13.9	12:17	17:37	22:57
Abell42		P Neb	Oph	17h 31m 31s	-08° 19.1'	14.6	12:00	17:40	23:19
Barnard78	B78	DkNeb	Oph	17h 32m 00s	-25° 35.0'		12:53	17:40	22:27
NGC6388		Globular	Sco	17h 36m 17s	-44° 44.1'	6.9	14:30	17:44	20:59
M14	NGC6402	Globular	Oph	17h 37m 36s	-03° 14.7'	9.5	11:52	17:46	23:40
Barnard276	B276	DkNeb	Oph	17h 39m 39s	-19° 49.0'		12:42	17:48	22:54
M6	Butterfly Cluster	Open	Sco	17h 40m 20s	-32° 15.2'	4.5	13:27	17:48	22:10
NGC6397	C86	Globular	Ara	17h 40m 42s	-53° 40.0'	5.6	16:10	17:49	19:27
NGC6426		Globular	Oph	17h 44m 55s	+03° 10.1'	11.2	11:42	17:53	00:04
Barnard83a	B83a	DkNeb	Sgr	17h 45m 18s	-20° 00.0'		12:48	17:53	22:59
IC4665		Open	Oph	17h 46m 30s	+05° 39.0'	4.2	11:36	17:55	00:13
NGC6445	Crescent Nebula	P Neb	Sgr	17h 49m 15s	-20° 00.6'	13.0	12:52	17:57	23:03
NGC6503		Galaxy	Dra	17h 49m 27s	+70° 08.6'	10.2	Circ	17:58	Circ
NGC6441		Globular	Sco	17h 50m 13s	-37° 03.0'	7.4	13:59	17:58	21:58
Barnard283	B283	DkNeb	Sco	17h 51m 00s	-33° 52.0'		13:45	17:59	22:14
Barnard285	B285	DkNeb	Ser	17h 51m 32s	-12° 52.0'		12:33	18:00	23:27
M7	Scorpion's Tail, Ptolemy's Cluster	Open	Sco	17h 53m 51s	-34° 47.6'	3.5	13:52	18:02	22:12
IC4670		Neb	Sgr	17h 55m 07s	-21° 44.6'		13:03	18:03	23:03
NGC6501		Galaxy	Her	17h 56m 04s	+18° 22.3'	12.3	11:09	18:04	01:00
M23	NGC6494	Open	Sgr	17h 57m 04s	-18° 59.1'	6.0	12:57	18:05	23:14
NGC6543	C6,Cat Eye Nebula	P Neb	Dra	17h 58m 36s	+66° 38.0'	8.1	Circ	18:07	Circ
NGC6496		Globular	Sco	17h 59m 04s	-44° 16.0'	9.2	14:49	18:07	21:25
Barnard291	B291	DkNeb	Sgr	17h 59m 43s	-33° 53.0'		13:53	18:08	22:22
Barnard292	B292	DkNeb	Sgr	18h 00m 34s	-33° 20.0'		13:52	18:09	22:26
Barnard293	B293	DkNeb	Sgr	18h 01m 12s	-35° 20.0'		14:01	18:09	22:17
M20	Trifid Nebula, The Clover	Open+DNeb	Sgr	18h 02m 42s	-22° 58.2'	5.0	13:15	18:11	23:07
M8	Lagoon Nebula, Dragon Nebula	Open+DNeb	Sgr	18h 03m 41s	-24° 22.7'	5.0	13:21	18:12	23:03
Barnard295	B295	DkNeb	Sgr	18h 04m 05s	-31° 09.0'		13:46	18:12	22:38
M21	NGC6531	Open	Sgr	18h 04m 13s	-22° 29.3'	7.0	13:15	18:12	23:10
NGC6530		Open	Sgr	18h 04m 31s	-24° 21.5'	4.6	13:22	18:13	23:04
NGC6528		Globular	Sgr	18h 04m 50s	-30° 03.3'	9.5	13:43	18:13	22:43
IC4684		Neb	Sgr	18h 09m 08s	-23° 26.1'		13:23	18:17	23:11
IC4685		Neb	Sgr	18h 09m 18s	-23° 59.2'		13:25	18:17	23:10
Barnard303	B303	DkNeb	Sgr	18h 09m 28s	-23° 59.0'		13:25	18:18	23:10
IC1274		Neb	Sgr	18h 09m 51s	-23° 38.8'		13:24	18:18	23:11

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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	11:59	18:20	00:42
NGC6567		P Neb	Sgr	18h 13m 45s	-19° 04.5'	12.0	13:14	18:22	23:30
IC4701		Neb	Sgr	18h 16m 36s	-16° 38.0'		13:09	18:25	23:41
Barnard93	B93	DkNeb	Sgr	18h 16m 53s	-18° 03.0'		13:14	18:25	23:36
IC1284		Neb	Sgr	18h 17m 39s	-19° 40.3'		13:19	18:26	23:32
M24	Small Sagittarius Star Cloud,	Open	Sgr	18h 18m 26s	-18° 24.3'	4.5	13:16	18:27	23:37
M16	Eagle Nebula, Star Queen Nebula, The Ghost	Open+D Neb	Ser	18h 18m 48s	-13° 48.3'	6.5	13:03	18:27	23:51
Barnard308	B308	DkNeb	Sgr	18h 19m 08s	-22° 14.0'		13:29	18:27	23:25
M18	Black Swan,	Open	Sgr	18h 19m 58s	-17° 06.1'	8.0	13:14	18:28	23:42
M17	Omega Nebula, Swan Nebula, Horseshoe Nebula	Open+DNeb	Sgr	18h 20m 47s	-16° 10.3'	7.0	13:12	18:29	23:46
HR6923		Mult	Dra	18h 23m 54s	+58° 48.0'	5.0	Circ	18:32	Circ
M28	NGC6626	Globular	Sgr	18h 24m 33s	-24° 52.1'	8.5	13:43	18:33	23:22
Barnard95	B95	DkNeb	Sct	18h 25m 35s	-11° 44.0'		13:04	18:34	00:04
Barnard97	B97	DkNeb	Sct	18h 29m 05s	-09° 55.0'		13:02	18:37	00:13
Abell44		P Neb	Sgr	18h 30m 11s	-16° 45.4'	12.6	13:23	18:38	23:54
NGC6637		Globular	Sgr	18h 31m 23s	-32° 20.8'	7.7	14:19	18:40	23:01
IC1287		Neb	Sct	18h 31m 26s	-10° 47.7'		13:07	18:40	00:12
M25		Open	Sgr	18h 31m 42s	-19° 07.0'	6.5	13:32	18:40	23:48
IC4725		Open	Sgr	18h 31m 48s	-19° 06.7'	4.6	13:32	18:40	23:48
NGC6642		Globular	Sgr	18h 31m 54s	-23° 28.5'	8.8	13:46	18:40	23:34
NGC6644		P Neb	Sgr	18h 32m 35s	-25° 07.7'	12.0	13:52	18:41	23:29
NGC6647		Open	Sgr	18h 32m 49s	-17° 13.6'	8.0	13:27	18:41	23:55
IC4732		P Neb	Sgr	18h 33m 55s	-22° 38.6'	13.0	13:45	18:42	23:39
NGC6656	Crackerjack Cluster	Globular	Sgr	18h 36m 24s	-23° 54.2'	5.1	13:52	18:45	23:37
IC4756		Open	Ser	18h 38m 54s	+05° 27.0'	5.0	12:29	18:47	01:05

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
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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
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Lac - Lacerta

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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
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Psc - Pisces
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Sct - Scutum
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Sgr - Sagittarius
Tau - Taurus
Tel - Telescopium
TrA - Triangulum
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