SIRIUS ASTRONOMER

www.ocastronomers.org

The Newsletter of the Orange County Astronomers

General information and contacts for the Orange County Astronomers club can be found at www.ocastronomers.org

May 2026 Free to members, subscriptions $12 for 12 issues **Volume 53, Number 5**

Alan Gorski got these picture of the Aurora Borealis in Colorado Springs, CO in November 2025. He used a Canon 50D camera with Canon L 17-40 zoom lens. Another image can be found at the end of this newsletter

Upcoming Events - free and open to the public

Beginner's class	Friday, 5 June at 7:00 to 9:00 PM This is the 4th session of the Beginners Astronomy Class. It covers the science behind the telescope: how our eyes perceive objects seen by telescope and the physics involved.	**ONLINE**
Club Meeting 	Friday, 8 May at 7:30 to 9:30 PM "What's Up": Michael Beakage from OCA Main speaker: Dr. Roberto Maiolino from Kavli Institute for Cosmology, University of Cambridge whose talk will be Early galaxies and infant black holes in the primeval Universe	**ONLINE and IN PERSON** **IN PERSON** **ONLINE**
Astro-Physics SIG	Friday, 15 May, at 7:00 PM to 9 PM Orange Coast College, Building 40, Astronomy House	**IN PERSON**
Star Parties	Saturday, 16 May at the OCA Anza site. 9 May at Irvine site – must get reservation from Alan Smallbone per his email to OCA members	

The monthly club meeting is viewable in progress on Zoom and our social media platforms. The recording is available on these platforms after the meeting is over.

https://www.facebook.com/OrangeCountyAstronomers
https://www.youtube.com/@ocastronomers

Please consult the calendar on the OCA website to RSVP online meetings (required)

President's Message

By Barbara Toy

The Ongoing Saga of the OC Star Parties…

Those who remember OCA life before Covid can without doubt recall our in-county star parties. In the earlier days of the club, we had an arrangement with the Irvine Company, which owned a good part of the Santa Ana Mountains, to use an area in Santiago Canyon for monthly star parties that generally were on the Saturday either before or after the Anza star party. We had our own porta-potty there, and some members were even allowed access on nights other than star party nights.

That ended when the Irvine Company turned management of the entire area over to what became the Irvine Conservancy, and they determined that the area we were using was part of a restoration area – they were working to overcome the effects of years of grazing and other activities and to restore the natural vegetation and improve the populations of local wildlife. We were ultimately able to work out an arrangement with the Conservancy for access to a location in Black Star Canyon, and we used that for many years. Space was limited there though, and Steve Mazera, the last Coordinator for the star parties before Covid, looked for areas with more space and ultimately got us a viewing location at the model airplane field near Irvine Lake. That served us well for several more years.

When Covid hit everything was shut down. Among other losses from that time, we lost contact with Steve Mizera and all of our known contacts within OC Parks. It took us a long time to find a contact who might be able to get us access to a viewing site in the Santiago/Irvine Lake area again. As I reported in a previous Message, we finally made some progress last year through the efforts of Charlie Oostdyk and Alan Smallbone. Although we initially proposed returning to the model airplane field, the rangers we were discussing this with had some better options, the best of which for our purposes is the Augustine Site, off Santiago Road. Alan and I met with the rangers there to see the site in person, and they all seemed enthusiastic about working with us, and particularly encouraged us to allow members of the public to participate, as well. One ranger, who gave public astronomy talks at Caspers Park in the past, was interested in giving presentations at some of our star parties.

At that point, having agreed on the location, we understood that all we had to do to get things going was to complete the permit request form, give them our star party dates, and provide proof of insurance. We did that, and thought that the permit would issue quickly, but instead there was a long delay with no response from anyone at OC Parks. Alan kept trying to follow up, and ultimately was referred to a supervisory ranger, who had a lot of questions about what we were planning, etc. After a long conversation and more waiting (which took us into April), we finally got the permit.

Alan has posted the subsequent correspondence with OC Parks to our email groups. It is lengthy and I won't reproduce it here, but you can check on it in either email group. If you are not a member of either or both of those groups, I encourage you to join them as a good source of current information on club activities and concerns and a good way to get to know more of your fellow club members. There are links on the home page of our club website; the two email groups are OCAstronomers@groups.io and AstroImagers@groups.io.

In short, the permit imposes many unexpected restrictions. Fundamentally, we are strictly limited to 30 people total per star party, which includes club members, members of the public and any family members or other guests. Everyone who comes to the star party has to be registered on the OC Parks webpage for each event in advance. There will be no way to allow anyone to bring a last-minute guest or to come spontaneously. We must also end our activities by 10:30 p.m. and be off the site with the gates closed and locked by 10:45 p.m. There are far more provisions that make it much more difficult to have a star party or an outreach event under this permit than with our past star parties, which generally could last until midnight and allowed a lot of informal coming and going during the parties.

Alan and I sent them a lengthy response, pointing out, among other things, that we had a long history of star parties in the area with no problems that would justify these kinds of restrictions. The response was that there had been a lot of changes because of problems they had during Covid, and there were also requirements in the contract between OC Parks and the Irvine Company that mandated many of these restrictions. However, they held out some hope that, if things work out well during a three-month trial period, we might be able to get some of these restrictions relaxed, though not to the level we had pre-Covid.

There has been discussion about all of this on the email groups and among the Board members. At this point, our plan is to try to hold star parties within the permit restrictions to see if we can make it work. However, as I write this, we are discovering that the Irvine Conservancy has some role in this that OC Parks had not told us about and they may impose some additional limitations. Getting in-county star parties going again remains very much a work in progress.

Alan continues to post updates on the email groups, and we are planning for the first star party under this new regime to go forward on May 9; we are hoping to see a good number of club members out there (remember to sign up in advance when Alan posts the instructions). If you can volunteer to help with these star parties, please contact Alan at Alan@OCAstronomers.org, and many thanks to those of you who have already volunteered.

Help Wanted

- OCA representative to the Western Amateur Astronomers
- Anza Maintenance Coordinator
- Orange County Star Party assistants

Both you and the club can benefit with your participation. For the WAA coordinator position, please send Barbara an email and give her a chance to tell you about it.

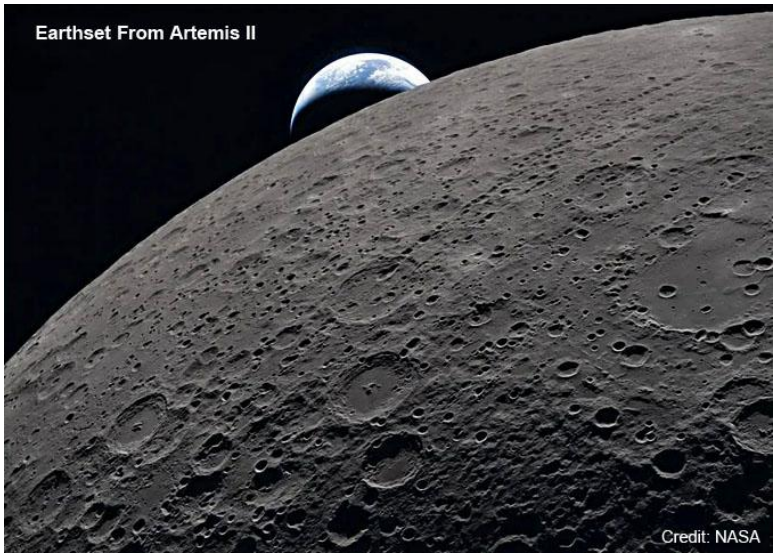
For the Anza Maintenance coordinator and Orange County Star Party assistants, Alan Smallbone at alan@ocastronomers.org is the person to contact. He can describe the jobs.

AstroSpace Update

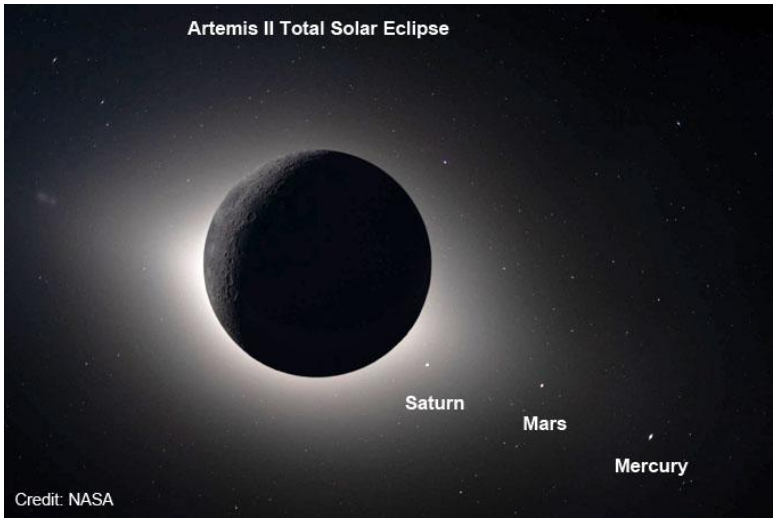
May 2026

Astronomy and space news summarized by Don Lynn from NASA and other sources

The **Artemis II mission** spent 10 days, starting April 1, taking 4 astronauts in a loop once around the Moon and returning to Earth, splashing down in the Pacific near San Diego. It was the first time humans had been at or near the Moon since 1972, when the last of the Apollo Moon missions occurred. All the 24 Apollo astronauts who ventured at or near the Moon were white male Americans. The crew of Artemis II broke those three barriers (a Canadian broke the third barrier).



The SLS rocket, somewhat more powerful than the Saturn V used for Apollo, and the Orion capsule performed well. Because Artemis flew higher above the Moon than Apollo vehicles did, it set the record for the farthest from Earth that humans have ever been. It also afforded the astronauts views of almost the entire back side of the Moon, while Apollo astronauts saw only a narrow strip of that back side on each mission.



Artemis astronauts took more than 7000 pictures of the back side, including impressive ones of Earth rise, Earth set, and a total eclipse of the Sun (which was visible from space but not from anywhere on Earth). Because the astronauts were much closer to the Moon than Earth-bound eclipse watchers ever are, the astronauts' solar eclipse lasted 54 minutes, while solar eclipses viewed from Earth never exceed 7.5 minutes.

The Artemis astronauts spotted 6 brief flashes of light while looking at the unlighted (lunar nighttime) areas of the Moon, which were attributed to small meteoroids colliding with the Moon. The Apollo 17 astronauts saw 3 such collisions in their 12 orbits, but the greater number for Artemis is probably due to their special training for observing such. Hundreds of such collisions have been recorded by video monitoring of dark areas by Earth-bound telescopes. The next Artemis mission, scheduled for next year, is to test docking in lunar orbit with a lunar landing vehicle, but without yet landing on the Moon.

New Crater – The Lunar Reconnaissance Orbiter (LRO) has been taking images of the Moon's surface since 2009. Old and new images of any given place are compared for changes. The largest new impact crater seen during LRO's mission recently showed up in this comparison. It is about 740 feet across. Statistics show that a crater of this size can be expected to occur on the Moon only once in 139 years, so one this large is rare. Measurement of this crater's properties, including rim height, depth, slope, extent and reflectance of ejecta, size of ejecta blocks, coverage of previous craters, etc., allows astronomers to better predict those properties on existing craters, at least when they were fresh.

Asteroids Discovered – The Vera Rubin Observatory in Chile has been observing most of the night sky every few nights for the last 1.5 months, even though it is not yet fully operational. During this time, it discovered over 11,000 asteroids. 33 of those are near-Earth and 380 of them are trans-Neptunian. Also 80,000 previously known asteroids were tracked. Predictions are that Rubin will discover a half million asteroids and comets per year when in full operation. There are about 1.5 million asteroids known now, so the Rubin discoveries will vastly increase that count. It is estimated that any asteroid over 460 feet in diameter would cause continent-sized destruction if it were to hit Earth. Predictions are that Rubin will find at least 80% of asteroids above that size, so astronomers will have a good idea if Earth is in danger of such a collision.

Martian Molecules – The Mars rover Curiosity drilled into soil rich in clay and analyzed the drill sample in its SAM instrument. This found 21 organic molecules, some never found before on Mars. One of those molecules is a precursor to DNA and RNA. These molecules could have been created by either biological means (if microscopic life exists on Mars) or geological means. With current technology scientists can't tell which. However, it means that this type of soil is conducive to preserving similar molecules that someday could be proof of life on Mars.

Uranian Moons – The James Webb Space Telescope (JWST) was used to study the rings around Uranus. The two outermost rings were found to have different compositions: one of water ice and the other of dust that is carbon rich. It is believed that these two rings were created and are being replenished by micrometeorites striking a nearby moon. So instead of wondering why the two outer rings have different compositions, astronomers are now wondering why the nearby moons have different compositions. To explain the icy moon, we probably need another spacecraft mission to Uranus (only Voyager 2 in 1986 has ever visited there).

Interstellar Comet – The third ever interstellar visitor to the Solar System 3I/ATLAS was observed by the ALMA radiotelescope array and JWST. ALMA can point near the Sun, unlike optical telescopes, so the first observations of 3I as it came from behind the Sun were made by ALMA. More deuterated water (H_20 with a heavy hydrogen isotope substituted for one of its hydrogen atoms) was found than is ordinary for comets that formed in our Solar System. This likely indicates that the planetary system that this object came from was much colder than our Solar System. It has likely been traveling from its home system to ours for over a billion years. But since space is cold, 3I preserved chemistry and conditions it acquired where it formed. As it receded from its passage near the Sun, observations detected increasing emission of methane. This probably indicates the methane was trapped beneath layers of various ices and was released after sunlight melted the outer layers.

Galaxy Dimmed – A team of astronomers has discovered a galaxy that dropped in brightness by a factor of 20 in a period of less than 20 years. Multiwavelength observations showed that the cause was a huge drop in the amount of gas flowing into the supermassive black hole at the center of the galaxy. Computer simulations show that the rate of matter falling into the black hole would have to drop by a factor of 50 to cause a factor of 20 in brightness. The galaxy is designated J0218-0036 and is so distant that its light took about 10 billion years to reach us. The brightness of active galaxies (those glowing brightly from matter flowing into their central black holes), typically vary over years by less than 30%, so this newly observed drop in brightness is exceptional. Astronomers hope to discover more galaxies with dramatic changes in brightness to learn more details of how this can happen.

Devoid of Dark Matter – In 2018 and the following year it was announced that astronomers had discovered 2 galaxies (designated DF2 and DF4) that were almost completely devoid of dark matter. That is, the total of ordinary matter (seen in stars and gas and dust) was almost exactly the same as total matter (including ordinary and dark matter), as measured by the galaxy's gravity. This was a blow to modified gravity theories, which cannot explain these objects. Astronomers have found another galaxy without dark matter, designated DF9. They are all satellite galaxies of NGC 1052, which does have dark matter. The most likely explanation for the now 3 objects is that a collision stripped the ordinary matter away from the dark matter halo that nearly always accompanies galaxies. This is what is believed to be going on in the famous Bullet Cluster of Galaxies, where due to galaxy collision the ordinary matter of the cluster of galaxies has been moved apart from the dark matter that used to be located surrounding the galaxies.

Overmassive Black Holes – JWST observed a portion of the Virgo Galaxy Cluster and found that two of the galaxies have extremely massive black holes near their centers, much more massive in proportion to the galaxies' masses than other galaxies. These are being referred to as overmassive black holes. The galaxies are known as NGC 4486B and UCD736 and are both dwarf galaxies. The latter of these has its black hole at 8% of the galaxy's total mass, as compared to less than 1% for nearly all other galaxies. Astronomers believe that the two galaxies previously had supermassive black holes that were a normal fraction of the galaxies' total mass, but that galaxy collisions stripped away much of the galaxies' normal mass (stars and dust). This left the black holes as much larger fractions of the reduced total mass. Also, the galaxy collisions would result in the supermassive black holes from each of the colliding galaxies merging into a yet more massive black hole, contributing to the increased fraction of mass.

Star Formation – The ALMA radiotelescope array in Chile observed a stellar birthplace in Taurus because the frequencies it observes penetrate the gas that obscures stars forming. The forming star was found to have spikey structures long enough to reach from the Sun to Saturn if they were placed in our Solar System. It is believed that these are releasing energy from material falling into the forming star. Also seen is a ring of material 100 times the size of the spikes. The ring is not centered on the forming star. Astronomers have developed a theory involving a magnetic field and instabilities to explain the structures observed.

More Star Formation – Roughly half of the Sun-like stars have one or more companion stars orbiting them. It has long been debated whether the close pairs formed together that way or came together later in their lives. A new study of 51 forming stars in the Perseus and Orion regions of star-formation suggests that most close binary star formed close at the same time and place as each other. The evidence was from the orientation and spin of the binary pairs. The observations were made with the ALMA radiotelescope array, again because of its ability to penetrate gas and dust.

Region of Star Formation – A team of astronomers mapped out where in the Milky Way galaxy stars have formed in astronomically recent times. That region is a disk somewhat smaller than the whole galaxy. The radius of the star-forming region was found to be about 40,000 light-years while the radius of the galaxy is usually given as about 50,000 light-years. Stars near the center tend to be somewhat older than stars farther out, supporting the premise the star formation in a disk galaxy starts at the center and proceeds as a circular wave toward the outskirts. Red giant stars were used in the study because they can be seen at greater distances and their ages can be more accurately determined. The locations of more than 100,000 stars in 3 dimensions were found from Gaia space telescope data.

New Class of Star – A white dwarf star is the end state of a star that begins with less than 8 or 10 times the mass of the Sun. When it runs out of nuclear fuel, it collapses into a white dwarf, an extremely dense star with no source to produce further heat, and it just cools over billions of years. But if it has a closely orbiting binary companion star, the white dwarf will gravitationally pull material off the companion that forms about the white dwarf a very hot ring that emits X-rays. So a white dwarf emitting X-rays always has a close companion star, until two recent discoveries of white dwarfs emitting X-rays with no companions. These stars possess hot rings emitting X-rays (one of the two has only a partial ring), but the hot ring appears to be a remnant of a previous merger with another star. Astronomers have decided that this is a new class of star never seen before, and are calling the class "merger remnants". It had been thought that a merger with a white dwarf would cause a supernova, but apparently not always.

Ancient Star – A class of 10 undergraduate students while working on an assignment discovered one of the oldest known stars in the Universe in data from the Sloan Digital Sky Survey. It is the most pristine star known. That is, it contains less of all elements other than hydrogen and helium than any other known star. The content of carbon was so low it couldn't be detected. Because these non-hydrogen non-helium elements build up from successive generations of stars, this star must have formed in the first few generations of stars. When they traced its motion backwards they discovered that it formed in the Large Magellanic Cloud, a satellite galaxy to our Milky Way, and then migrated to the Milky Way. It is designated SDSSJ0715-7334.

Possible First Stars – Observations by JWST of a very distant galaxy still undergoing formation were unable to find any elements heavier than hydrogen or helium. This may indicate the galaxy is composed of the first generation of stars to ever form. The search for original stars has been long and unsuccessful, so this claim will have to be rigorously verified. The forming galaxy is so distant that the light we are seeing left there only 400 million years after the Big Bang. It is located near the larger galaxy GN-z11, which is one of the most distant galaxies known.

Solar Flare – The Daniel K Inouye telescope on Maui is the largest solar telescope and has made the most detailed observations ever of features on the Sun's surface. It recently observed a moderate-sized solar flare and found surprising behavior during the flare's fading. It observed the calcium II H and hydrogen-epsilon spectral lines emitted by the flare. The lines showed highly asymmetric shapes on different parts of the flare. This indicates the flare structure remains complex even during fading.

Exoplanets Found – The TESS space telescope has collected data on more than 2 million stars in order to find exoplanets as they pass in front of (transit) their stars. Astronomers examining that data have found about 8000 likely exoplanets (candidates) of which about 700 have been confirmed. Scientists have developed a machine learning computer program called RAVEN, which is designed to take a second look at all the TESS data to see if more planets are hiding in the data. RAVEN found more than 2000 planet candidates and 100 confirmed planets. Confirming a planet involves ruling out causes other than a planet that might look like a transit, such as binary stars or stellar activity. The planets found by RAVEN confirmed the Neptune Desert. This is the conclusion held by many astronomers that Neptune-sized planets that orbit quite close to their star are rare, even though smaller and larger planets can often be found quite close to their star.

SPHEREx is a wide-field infrared space telescope launched in March 2025. It recently observed two star-forming regions in Cygnus. The regions were selected because the thick clouds there were thought to protect sensitive molecules from being destroyed by the ultraviolet radiation from young stars. Indeed, the observations found such molecules including ices (both water and carbon dioxide ice) and Polycyclic Aromatic Hydrocarbons (PAHs). Also found were hydrogen shocks emitted by massive forming stars. SPHEREx is planned to observe the entire sky twice a year and look for changes. Expect a lot of discoveries from SPHEREx in the future.

Large Exoplanet Formation – JWST observed the exoplanet 29 Cygni b, which is so massive (about 15 times Jupiter's mass) that it is on the edge of being a brown dwarf (a body larger than a planet but too small to sustain nuclear fusion that powers stars). The elements found in it and the orientation of its orbit suggest that it formed like a planet does, that is, by accreting from a disk of dust and gas circling a star. This is opposed to how stars form, by collapsing from a cloud due to gravity. The exoplanet orbits its star at about the distance that Uranus orbits our Sun. JWST observations also are being made of 3 other bodies with masses in the range of 1 to 15 times Jupiter's mass to try to determine how they formed.

Neutrino Mass – The neutrino is the least massive of all subatomic particles that possess mass. Because it does not possess properties that particles with zero mass have (such as the photon), the neutrino is known to have non-zero mass. But that mass is so small that it has never been measured. The best scientists have been able to do with current technology neutrino experiments is calculate a mass that is known to be an upper bound to the neutrino's mass. A new experiment called KATRIN is studying decay of the hydrogen isotope tritium, and a byproduct is a new upper bound to the neutrino mass. The new result is 0.45 eV/c^2, which is 4 times smaller than the best result from previous neutrino experiments. It is more than a million times smaller than the mass of the electron. Continuing KATRIN measurements are expected to further lower the neutrino limit.

News About Our Anza Site

Kuhn Shipping Container Cleanup

2 boxes that formerly contained Meade SCT telescopes other than the ones installed in the Kuhn observatory remain in the container. Two others were brought back to Orange County for telescopes are in the OCA storage space in Santa Ana.

Cans of dead paint were identified and brought back to Orange County for disposal as was a pile of trash from the cleanup.

Some work to reorganize the container will proceed gradually.

Dealing With Weeds
Some of the observatory owners have been out here recently, clearing weeds in their areas. There are still other areas not yet attended to. This needs to be done soon because fire season approaches.

Upper Pads Area
A load of gravel will be spread over some of the areas that were cleared of vegetation last year to limit erosion and make the area less prone to mud following rain and snow. This will happen sometime during the next couple of months.

From the Editor

Has anybody an idea for a new article or interesting column of articles for the newsletter ? The NASA column will no longer be available.

The newsletter is once again looking for front cover picture contributions. We have had one suggestion that is being looked into and are very open to additional ones.

Due dates for submission of articles, pictures and advertisements are generally 13 days prior to the subsequent general club meeting.

Issue	**Due date**
June	30 May
July	27 June
August	1 August

OWENS VALLEY RADIO OBSERVATORY TRIP
SCIENCE BEYOND THE BOOK

June 12-13th 2026

With Dr. Mark Hodges and
Dr. Doug Millar and Cecilia Caballero, MA

Please join with us on the above dates for an extraordinary adventure in science education at the Owens Valley Radio Observatory, outside of Big Pine, CA. Included are science demonstrations at the 40m radio telescope and a tour, walking a scale model of the Solar System, solar astronomy, and nighttime astronomy. We will also make ice cream with liquid nitrogen.

This year we are emphasizing the DSA2000 radio telescope. We will have the chance to hear from one of the engineering staff and talk about some of the technical details of the array. We will also review some of the challenges to getting the data transferred and transformed. It should be very interesting. If you want to get a head start look at the DSA2000 website at https://www.deepsynoptic.org/

If you want to come on Friday, we have been invited by the owners of the Starlight Motel to be treated to an Indian dinner free of charge to our attendees. It will be served at the motel at 5pm. Please let us know if you would like to attend, because we need a head count. We will also have an evening of astronomy Friday night at the south of Building #10 at the west end of the observatory. You can bring your own telescope and there will be a number of telescopes set up to share their views. 120V AC is available. We will also do astronomy on Saturday night. The main program will be on Saturday afternoon, starting in the dining area in Building #10. We will go to the Pizza Factory in Bishop for dinner.

The tour of OVRO is free and courtesy of Dr. Mark Hodges, OVRO, and Caltech. Attendees are responsible for their own meal expenses. This trip is open to teachers, students with their families, members of local astronomy clubs, and radio hams. You must RSVP to go on the trip to Dr. Millar so that we know how many to expect (contact information below). Please also forward your cell phone number.

This is not a sponsored event. Everyone is on their own for transportation and lodging. You have many options. You can stay at a motel nearby, camp in a campground, or bring a tent or trailer and stay at the OVRO site. Don't camp under the 130ft dish as it is a favorite object for photos. We can give you more ideas of good spots to set up camp. If you do decide to camp at OVRO, you must provide your own bathroom, as the buildings will be locked. There are places to eat in Big Pine and Bishop. The Brewed Awakening in Big Pine is great and Jack's in Bishop is an old favorite.

Please arrive at OVRO by 1:00 PM on Saturday for the program. The weather will be warm and dry. If there are mosquitos, I'll have repellent available. Evenings will be a little cooler, so dress accordingly for the nighttime astronomy. Most popular food to share? Chocolate chip cookies. Coffee will be available. Or bring your favorite K cup.

The March Sirius included several pictures of prior visits to give a sense of what this activity is like.

Schedule:

Friday-

Dinner at the Starlight Motel

Set up telescopes to the south of building #10 for astronomy by sunset. 110v AC, bathroom and coffee and water available.

Saturday

1:00pm: arrive at kitchen in building #10 for start of program and tour.

5pm: check in at your Motel (if not already checked in) and go to dinner in Bishop.

Evening- Astronomy at the site

Sunday

A lot of us like to gather for breakfast about 9:30 at Jack's in Bishop. More information will be available on Saturday.

Leave whenever you like. Check websites about the area and the Highway 395 for sightseeing opportunities.

The directions from the LA area are: Drive north on the I5/CA14 through Palmdale and Mojave. Continue past Inyokern and join US395. Continue on North through Little Lake, Lone Pine and Independence. Continue through Big Pine. Just as you get to the end of town turn right on Highway 168 towards the Westgard Pass. Go about 2 miles and turn left onto Leighton Lane, the observatory road. You should be able to see the 40m dish in the distance, but it is 4 miles away! Continue through the gate, even though it says "authorized personnel only", onto the property and follow the blacktop road. Go past two 90-foot telescopes to the west end of the site and park. Below is a more detailed map. The observatory address is: 100 Leighton Lane, Big Pine, CA.

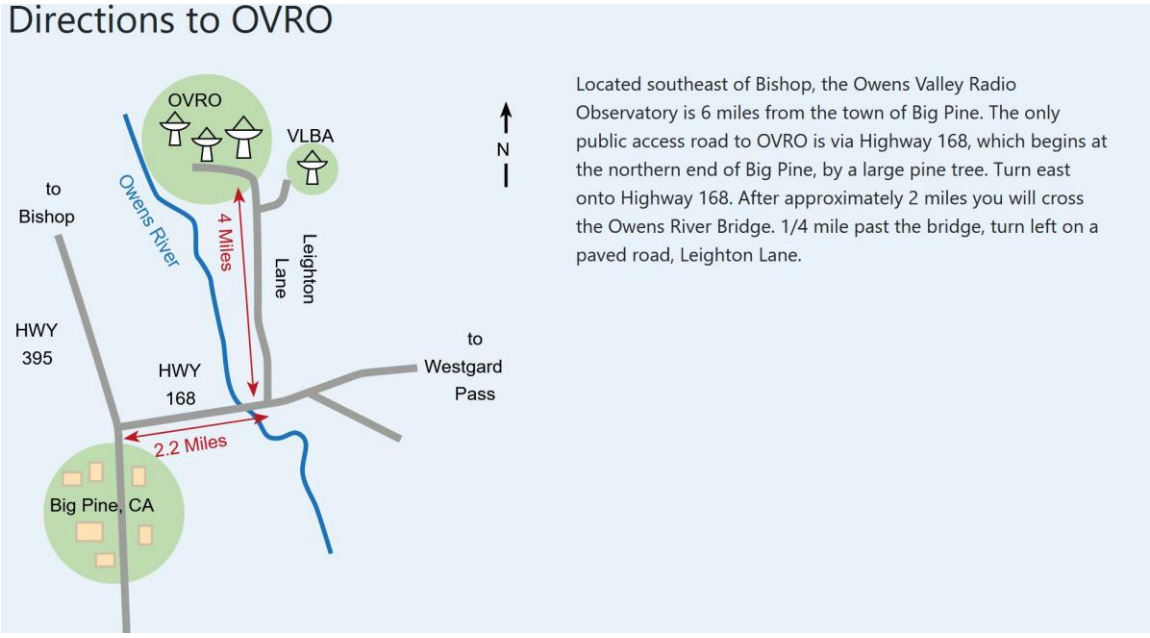
If you would like to bring your own telescope, please do so.

For any questions and RSVP's, my contact information is
Dr. Doug Millar Cell- 562-810-3989 and email is drzarkof56@yahoo.com

Thank you and I hope to see you on the trip!
Dr. Millar

Local Directions to the observatory:

n.b. The large pine tree no longer exists.



Advertisements

Buy, Sell or Trade some of your gear? This is where club members can place advertisements. Please contact the editor at newsletter@ocastronomers.org to place an advertisement or to learn more about placing one. There is no cost to club members for non-commercial advertisements in the newsletter. The editor may resize and re-arrange ad content to fit and will feed back the formatted ad for approval prior to publishing.

Some policy changes have been made to reflect the expanded capacity of the electronically published newsletter.

- Each advertisement may now occupy up to ½ of a printed page and may include small pictures within the space permitted. The editor may resize and re-arrange ad content to fit and will feed back the formatted ad for approval prior to publishing.

- Each advertisement may be run for 3 consecutive issues, after which it will be removed unless the advertiser requests extension of the ad by contacting the editor of the newsletter.

For Sale contact Jerry Floyd jlfloyd720@gmail.com

- Stellarvue **SV102EDT** Triplet Refractor, 102mm aperture, 621mm focal length, f/6.1, Serial #23 $ 600

This is equipped with JMI Focuser, tube rings, and base plate.
Telrad (mounted on custom wood adapter) and star diagonal are included

- Stellarvue **SV80S** apochromatic triplet refractor with High-quality Russian LOMO OK4 glass $ 600

  80mm aperture, 480mm focal length, f/6.0, Serial #0018. Designed by Thomas Back.
  2 inch Feather Touch Focuser, saddle plate instead of tube rings.
  1.25 inch star diagonal, 2 inch to 1.25 inch reducer, 25mm 1.25" Plossl eyepiece and soft case included

- Stellarvue **SV80L** super apochromatic triplet refractor. 80mm aperture, 600mm focal, f/7.5 $ 550

  2" Feathertouch focuser
  Has a single large tube ring with base plate for mounting
  Included are 2" star diagonal, Stellarvue red-dot finder, and padded case.

Pick up in Hemet, at OCA Anza site, or I will deliver locally in Southern California area, within approx. 100 mile radius.

For Sale contact Val Akins akins7821@gmail.com

- University Optics 1 1/4" eyepiece set with Meade RG lenses - (hard to find!) $100
  8 eyepieces with case

Want to Buy contact Norbert Ulbrich janmaatcalifornia@yahoo.com 650-507-9944 Cell

- Aerospace Engineer is looking for a vintage 4-inch refracting telescope from the 1950s or 1960s that was made by the **GOTO Kogaku Company of Tokyo, Japan**. The refractor can be in any condition.

I will do personal pick-up and pay a fair price. Please, contact Norbert by email or via my cell phone - text anytime, call after 8:00pm.

For Sale contact Steve Feldman 949-461-0028

- Sky Watcher Mak 127, pickup only, Mission Viejo $280
- SynScan Hand Control v.5, pickup or mail $100
- ZWO 482 MC Planetary Camera, pickup or mail $125

Another aurora capture by Alan Gorski, same date and place as on the cover image.

Last Page