SIRIUS ASTRONOMER

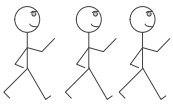
www.ocastronomers.org — The Newsletter of the Orange County Astronomers

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

December 2025 Free to members, subscriptions $12 for 12 issues **Volume 52, Number 12**

This formation is IC59 and IC63 with the bright star Gamma Cassiopeia just to their right. Sam Saeed captured this in 2015 using a Borg 60mm refractor and QSI683 mono camera.

Upcoming Events - free and open to the public

Beginner's class	This is session 5 of the class, the **IN-PERSON** session "How to Use Your Telescope". Bring your telescope to class and get some help learning to set it up and use it. This class is at Orange Coast College, near Building 40, Astronomy House	
Club Meeting 	Friday, 12 December at 7:30 to 9:30 PM "What's Up": Michael Beckage from OCA Main speaker: Charles Cockell from University of Edinburgh whose talk will be "Settling Space with Microbes"	**IN PERSON** and **ONLINE** **IN PERSON** **ONLINE**
Astro-Physics SIG	Friday, 19 Dec 2025, at 7:00 PM to 10 PM Orange Coast College, Building 40, Astronomy House	**IN PERSON**
Astro-Imagers SIG	Friday, 5 Dec at 7:00 to 10:00 PM Final Meeting ! Orange Coast College, Building 40, Astronomy House	**IN PERSON**
Star Parties	Saturday, 20 December at the OCA Anza site.	

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

Happy Holidays!

At this point, we have Thanksgiving behind us, with its celebration of family, food and gratitude for our blessings, and the rest of the busy holiday season is still ahead. For most of us, this is a busy time of year, with celebrations from a lot of different traditions. This includes celebrations of the Winter Solstice, December 21 this year, marking the start of winter. I didn't realize until recently that all those references to Yule and Yuletide in Christmas carols actually are references to the solstice, coming from ancient Nordic and Germanic traditions. Apparently, in pre-Christian times, the period around the Winter Solstice was a time to party, so partying during this season has strong historical roots.

Of course, this is also a time when many astronomically-oriented people acquire new equipment, or at least equipment that's new to them. If you have a tight budget in that area, or want to try out a telescope before committing to buying it, I strongly suggest checking out Jake Brown's inventory in the Adopt-a-Scope program. If you're one of these, particularly if you're getting your first telescope and are not quite sure how to set it up or how to use it, you should consider attending the "Bring Your Own Scope" session of the Beginners Class, which is on January 2, 2026 (see the information on our website calendar for time, location, etc.). If you have questions about the class, please contact Dave Pearson, the coordinator (David@OCAstronomers.org).

However you celebrate this time of year, I hope you and your loved ones all have a wonderful holiday season!

OCA Election

We're now at the stage in the OCA election process when the ballot has been finalized and voting is under way. You should be getting a link to vote electronically in early December. If you don't receive it by December 10, please contact John Hoot (observatory@ssccorp.com). You should also be able to download a ballot that can be printed and sent by mail from the website – if you have problems doing that, please contact Reza AmirArjomand or Alan Smallbone. The deadline for voting is the day of the January meeting, but don't wait for that – get your ballot in as soon as you can to be sure it will be counted.

I'm happy to report that the ballot includes a couple of returning past presidents, Liam Kennedy (who has actually been on the Board since he was appointed to complete Doug Millar's term in September) and Greg Schedcik. It's great that both of them are willing to return to the Board, and they will both bring a lot of experience in different areas to our discussions.

Sadly for us, Gary Schones has decided to retire from the Board. He has been a Trustee since the 1990s and has been instrumental in developing our Anza site, including making it possible for us to get the trailers that are now Anza House, doing the necessary bulldozing work for Mars Hill, several observatory areas and other areas on the site, working on infrastructure, building many member observatories, maintaining our roads, and other projects beyond count. He tells us that he will continue to be involved with the Anza site, which is great news, but we will miss his knowledge and perspective in our discussions of issues facing the club.

Help Wanted

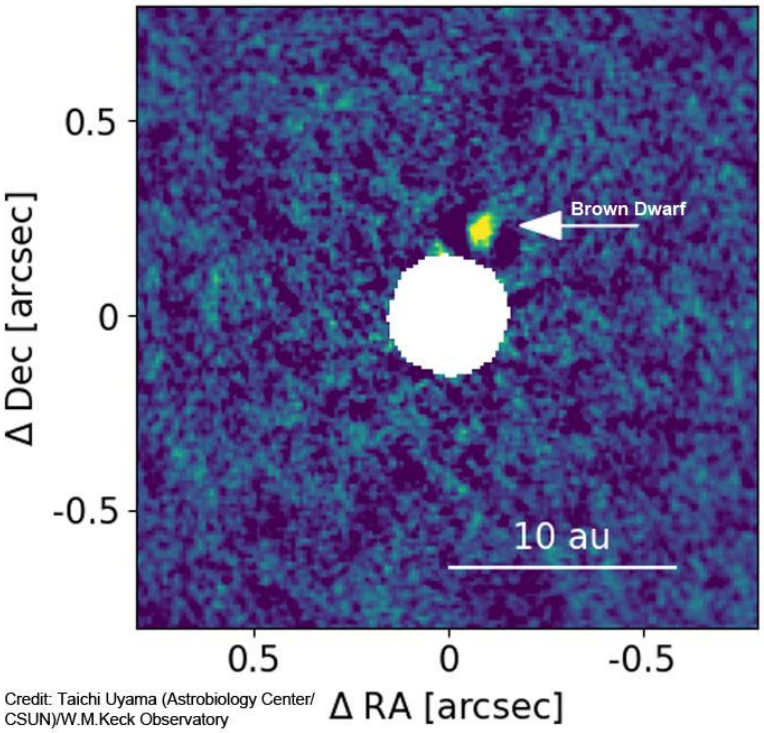
- OCA representative to the Western Amateur Astronomers
- Coordinator to organize star parties in Orange County

These are pretty easy jobs. Both you and the club can benefit with your participation. Please send Barbara an email and give her a chance to tell you about them.

AstroSpace Update

December 2025
Astronomy and space news summarized by Don Lynn from NASA and other sources

Nearby Brown Dwarf – A team of astronomers using both ground- and space-based telescopes discovered a brown dwarf orbiting a nearby red dwarf star. Red dwarf stars are less massive, dimmer and redder than our Sun, while brown dwarfs are dimmer and less massive still, so much so that they cannot sustain nuclear fusion that powers ordinary stars. The red dwarf is known as J1446 and is only 55 light-years away. The brown dwarf orbits its star a little more closely than Jupiter orbits the Sun, and takes about 20 Earth years per orbit. The brown dwarf undergoes substantial brightness changes in infrared light, indicating it has dynamic clouds or storms in its atmosphere. The majority of stars in our galaxy are red dwarfs. Early surveys of these found that more than 70% were single stars. But more recent observations are finding many dim companions to red dwarfs, such as brown dwarfs. The new brown dwarf discovery was made by the radial velocity method, where the red dwarf was found to wobble in response to the brown dwarf's gravity. The discovery was confirmed by imaging the brown dwarf with a high-resolution infrared instrument using adaptive optics to eliminate Earth's atmosphere's twinkling effects.



Credit: Taichi Uyama (Astrobiology Center/ CSUN)/W.M.Keck Observatory

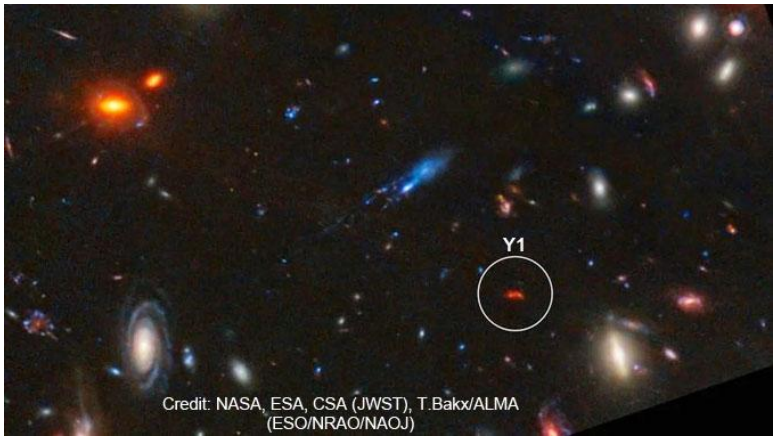
Possibly Original Stars – Astronomers used the gravitational lens effect of an intervening galaxy cluster to get magnified images of an extremely distant star cluster, known as LAP1-B, using the James Webb Space Telescope (JWST). This cluster showed some of the expected properties of original stars, the first ones to form after the Big Bang. The cluster's estimated mass is about 1000 times that of the Sun, and its stars are massive, which are predicted by computer simulations of the original stars. However, the spectrum of the cluster does show a little bit of elements heavier than hydrogen and helium, which should not be present in the very first stars. More work is needed to determine if this cluster truly contains original stars.

Exo-CME – Astronomers used the ground-based LOFAR radiotelescope array and the XMM-Newton X-ray space telescope to observe the first Coronal Mass Ejection (CME) seen on a star other than our Sun. This star is about 40 light-years away. It is a red dwarf star, which type is often much more active than our Sun. The material ejected was measured to be moving at about 1500 miles per second, faster than nearly all such ejections from our Sun.

Gravitational Lenses – Any huge concentration of mass, including quasars, can cause a gravitational lens. But few happen to have an object exactly behind it to be magnified by such a lens. Only about a dozen quasars were suspected of lensing more distant objects. Astronomers trained a computer program to identify lensing quasars by their spectra, and then had it search spectra of more than 800,000 quasars. Seven likely gravitational lenses were found. These are valuable discoveries because the lens allows accurate calculation of the mass of the black hole of the quasar.

Sun Left Its Birth Cluster – It is believed that most star formation results in an open cluster of stars that were born from one cloud of gas. Assuming this was true of the Sun, astronomers have used computer simulations of such a cluster forming with the Sun, then aged the simulation to see if it results in the structure seen in our Solar System today, particularly the structure of the very distant orbiting bodies. The result is that only clusters that spread out quickly after formation, probably within 50 million years, match today's Solar System.

Early Galaxies Explained – The first couple of years of JWST images showed too many and too massive of galaxies for the short time after the Big Bang that the distant objects that we were imaging existed. New observations, in both infrared and radio light, of a galaxy dubbed Y1 have partially resolved this. Y1 is so distant that the light we are seeing left there only 600 million years after the Big Bang. Astronomers were able to measure its star formation rate (SFR). It is 180 times the number of stars per year that the Milky Way produces today, far more than astronomers were predicting for galaxies in the early Universe. If Y1 turns out to be typical, that is how galaxies got so big so fast in the early Universe. Radio measurements took Y1's temperature and found it much hotter than expected. This is due to the high SFR heating the dust in the galaxy to high temperature (for a galaxy's dust, which is still far below zero). Astronomers hope to observe more early galaxies with high SFRs to see if Y1 is typical. Further work is needed to determine how Y1 created so much dust so early.



LMC Path – There has been much debate about the path that the Large Magellanic Cloud (a neighboring galaxy, abbreviated LMC) took to reach its present position. The current motion is too difficult to accurately measure and there are too many factors that may have influenced its motion. A new study of 3 stars that were thrown out of the LMC toward our Milky Way galaxy at high velocity allowed astronomers to determine exactly where LMC was at the times these 3 stars were hurled out. The cause of these stars being hurled were that a binary star approached a supermassive black hole with the black hole grabbing one of the binary and hurling the other away at high speed. The new work gave a more accurate trace back of the LMC's path than any previous work, but it still was not accurate enough to distinguish whether the LMC is making its first or second orbit about the Milky Way. It was accurate enough to tell astronomers where the supermassive black hole in the LMC is, so they can now go look for it. Because that black hole is not now active, it has not yet been found.

Pleiades' Relatives – Astronomers searched for stars that matched the stars in the Pleiades star cluster in terms of motion in space, age, and chemical abundances to determine which stars likely formed from the same collapsing gas cloud as the Pleiades. They found about 3000 stars spread across about 2000 light-years. The Pleiades themselves are about 440 light-years from us now, and its stars are about 120 million years old. The ages of stars in the new study were determined by gyrochronology, a method of determining star age based on spin rate. The spin rates were determined from data from the TESS space telescope, whose mission was actually to find dimmings of stars due to exoplanets passing in front of them.

Planet-Forming Disk – New observations of a young star known as HD 34282 using the Keck Telescopes in Hawaii found unusual features in the planet-forming disk about it. It is the best resolution of any image of such a disk. The image showed an inner disk (sometimes known as a transition disk), then a gap, then an outer disk. It is believed that forming planets can gravitationally clear a gap in such a disk. There was clumpy structure within the disk. Though a search was done, no developing planets were found. This is not surprising because forming planets are extremely difficult to image.

Unusual Exoplanets – A team of researchers discovered 3 Earth-sized exoplanets orbiting a fairly closely spaced binary star. Such binary stars often make their planets unstable so that they fly off from the system. This newly discovered system is unusual in that its planets are still there. Two of the planets pass in front of (transit) the primary star, and the other planet transits the secondary star. This is the only known example of planets that transit both stars of a binary system. The discovery breaks other records: the most compact binary with planets, the coldest binary stars with planets.

Mars Mission Launched – A pair of spacecraft known as the ESCAPADE mission was launched to Mars to study how the solar wind interacts with that planet's atmosphere. It is thought that Mars lost most of its original atmosphere over billions of years due to effects of solar wind. The launch vehicle was a New Glenn rocket, which was developed and built by the Blue Origin company. It is the first use of the New Glenn to launch to Mars. Normally launches to Mars occur only every 26 months, because that is the time when minimal energy is needed to change from Earth's orbit to Mars' orbit. This is the first time a Mars launch has ever been made at any other time. The rocket is now sitting in a parking orbit near Earth's L2 Lagrange point, waiting for that minimum energy time, when the rocket will fire again to leave the parking orbit and head toward Mars.

Solar System Motion – How fast is the Solar System moving through space? A new study measured this motion in relation to distant radio galaxies. The study did not measure actual motion, but measured number of galaxies visible, since there should be slightly more visible in the direction of our motion. The result was more than 3 times as fast as previous efforts to determine this, though one previous study using quasars more closely agreed with the new study. More work with various methods needs to be done to explain this discrepancy.

Martian Meteorite – The Mars rover Perseverance has examined a rock found to contain large amounts of iron and nickel, and is therefore likely a meteorite. It is this rover's first meteorite, though the previous rovers Spirit, Opportunity and Curiosity have all found meteorites. The new discovery is more than 2.5 feet across. It was nicknamed Phippsaksla, after a place in northern Norway.

Asteroid Spin – A study of small near-Earth asteroids found that they usually spin much faster than larger asteroids. This likely implies that small asteroids are mostly composed of a single rock, where many larger asteroids are known to be loosely-held-together piles of rocks. If this were not so, the fast-spinning small asteroids would be flying apart by centrifugal force. The new observations also imply that YORP forces are more effective at increasing the spin of smaller bodies, confirming theory. The YORP effect is the result of sunlight warming the sunward side of an asteroid, and then that warmth emits as infrared radiation, but in a slightly different direction due to the rotation of the body. The result is the asteroid feels a slight push in the direction that speeds up the rotation. YORP is the initials of the 4 astronomers who developed this theory.

Crater Discovered – A meteorite crater has been discovered in China. There are only about 200 such craters known on Earth. It appears to have formed since the last ice age, which was roughly 12,000 years ago. This is quite young as craters go. It is roughly 2900 feet across. Quartz fragments of a type found only in impact craters were found, solidifying the identification as an impact crater. The crater is quite well preserved even though it is in an area of heavy rainfall and other conditions that speed erosion.

Adopt-a-Scope

Raffle at the OCA Club Meeting in December 2025

Prize: Schmidt-Cassegrain Telescope on a fork-style mount (Currently evaluating)
Scope size in the range of 8 to 12 inch diameter
Motorized tracking in both axes
GoTo style hand controller
Metal tubular Tripod
Accessories: TBD
When: December 12, 2025, 7:30 pm.
Where: OCA General Meeting at Chapman University.

Participation is OPEN to OCA club members and non-members alike.
Interested parties must be present IN PERSON at the meeting.
Tickets for the RAFFLE are FREE to those in attendance.

Astroimaging Special Interest Group

By Kyle Coker
We will meet for one last time at OCC 5 Dec at 7:00 pm. I decided to stop having the in-person meetings after this meeting due to lack of participation. I think it will be ok since we have such a robust online group. Although we still have access to the OCC room on the first Friday of the month, the time and day just aren't convenient for many of our key members. Also, several of our active members have moved out of the area.

I see that there is some interest in holding Zoom meetings in the future. We were not able to use the club Zoom account on the first Fridays because it is already booked for the beginner's class. But we can always just use a private account although I think the free accounts are limited to one hour. We can talk to Alan about using the club Zoom account on other days.

Does anyone know of a central location that could accommodate up to 20-25 people. Mid-week seems to be a better time.

So, if anyone wishes to attend this last meeting, please come. That would be a great time to show off your latest images, comet pictures, movies, printed images, or ideas for going forward.

News About Our Anza Site

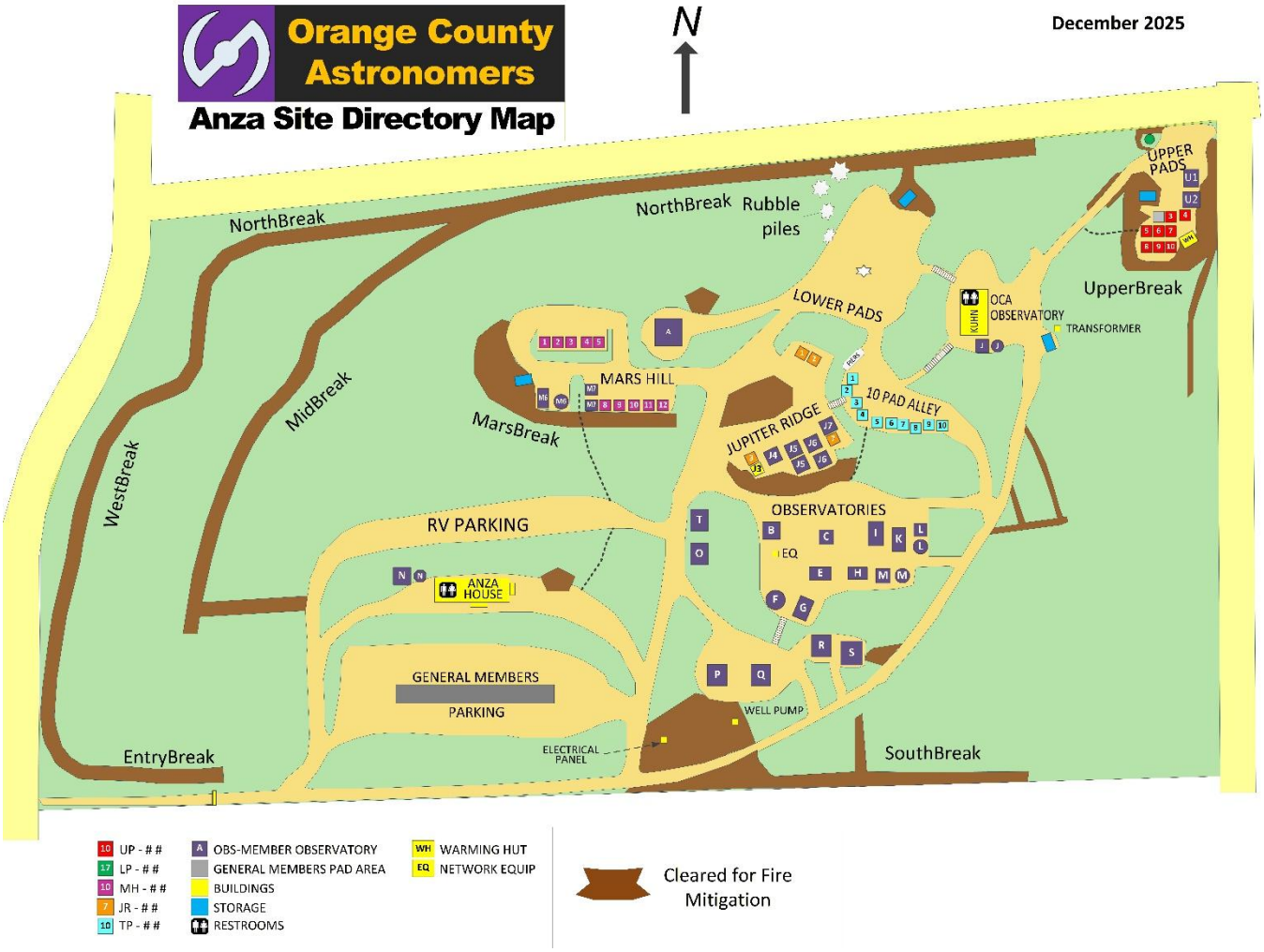
Lower Pads Demolition

The Lower Pad piers have been removed and placed on the ground at the West end of Tem Pad Alley.

The pads have been broken up and removed (possibly excepting one) and for now, the broken-up pad debris has been placed in piles along a gully to the West and North of the Lower Pads area.

Some pieces of debris will be used to stabilize the eroding slope between Ten Pad Alley and Jupiter Ridge. The club is also looking into the possibility of using some to prevent Bonny Lane from developing large gullies after rain storms.

There are no definitive plans yet for future use of the Lower Pads area.



Looking North from Ten Pad Alley into former Lower Pads area

Looking south from the storage container

The piers removed from their pads are being stored in Ten Pad Alley pending their movement to new pads assigned to owners. Owners should contact the OCA Board to work out who and how the piers will get to their new homes.

Front and back of one rubble pile. One can see the gully that it will block.

One of the main piles, seen from the east

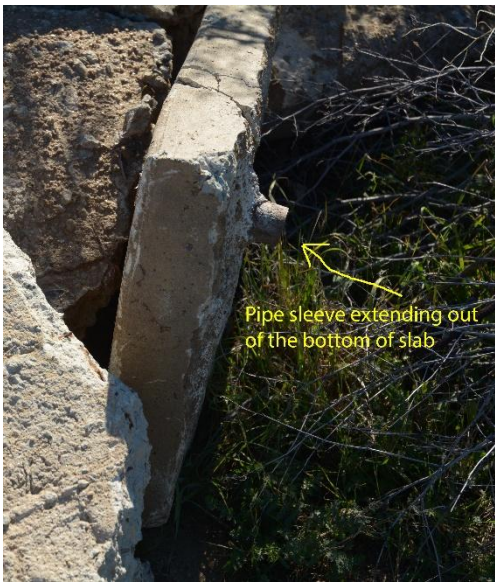
Main piles seen from the west

Anatomy of a pad

The slabs are typically 10 x 10 ft, though people did pour some to different dimensions. They varied in thickness from with 3.5 inches being common, 6 inches for some and at least one that is way thicker – maybe 18 inches ? That last one is so thick that it could neither be broken up nor lifted out of the ground in the first pass of demolition.

Some pads had pipe sleeves embedded near their corners at the time of pouring. These sleeves were sized to allow the pad users to insert pipes (1 inch Schedule 40 typically) which would form a framework for wind screens.

We can see pieces of slabs here. If you zoom into this picture, you may notice how they come in different thicknesses. The close-up of one slab shows that it was one of the thicker ones that needed to be pre-sliced by a concrete saw before it could be broken up with the equipment available. On the right, we see a pipe sleeve that would support a wind screen.



This is the very thick pad

A typical pier footer is seen here. Our club standardized positioning of the bolts so that piers would be interchangeable from pad to pad. Only the top portion of a footer is formed cylindrically. The bottom, called the "plug", is poured to fill the hole and this is the part that gives stability to the pier.

Kuhn Shipping Container Cleanup

We will be cleaning up the club's shipping / storage container located near the Kuhn observatory, probably in January. David Fischer will be organizing this effort and would appreciate hearing from people who know about the items that have been stored there. We will need knowledge to decide what to keep. Send email to dkn.fischer@gmail.com to let him know of your interest to help.

Repair of the Barbeque

It needs new wheels – the original ones broke off because they were not designed for gravel surfaces. We would like to set it up with bigger, better wheels on both front and back ends. This looks like a job for somebody who likes to tinker with stuff.

Do we have any volunteers ?

Contact David Fischer newsletter@ocastronomers.org

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.

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

Issue	**Due date**
January 26	27 December
February	31 January
March	28 February

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 Ron Choi rchoi1983@gmail.com

• Orion EON 115mm f/7 Triplet APO Refractor with Orion 3" Field Flattener	$1100
• Celestron 8" Edge HD Optical Tube with Celestron Padded Soft Case	$1200
• Sky-Watcher EQ6R Pro Equatorial Mount	$1000
• Optcorp TRIAD Filter 2" Ultra	$ 750
• Altair 2 inch Magnetic Filter Drawer	$ 70
• ZWO ASI071MC PRO	$ 700
• ZWO ASI533MC PRO	$ 550
• ZWO ASI174mm Mini	$ 320
• ZWO ASI224MC	$ 100
• QHYCCD Pole Master	$ 190
• ASIAIR PLUS 256 GB	$ 280
• Tele Vue Delite 11mm	$ 200
• Tele Vue Plossl 32mm	$ 100
• Tele Vue Plossl 8mm	$ 70
• Tele Vue 2x 1.25" Barlow	$ 90
• Orion OAG Off Axis Guider	$ 240
• Orion 9x50 mm Correct-Image Right Angle Finder Scope	$ 100

For Sale contact Jerry Floyd jlfloyd720@gmail.com

- Stellarvue SV102EDT Triplet Refractor, 102mm aperture, 621mm focal length, f/6.1, Serial #23 $ 950

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

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

The items below are being sold on behalf of Russell Sipe's estate. John Bartsch is handling them. All items are local to Orange County. Please consider that John is not an astronomer and will need some help from prospective buyers in evaluating some of these items. Those who are interested should contact him directly and make arrangements to inspect these things.

For Sale contact John Bartsch Text at (714)328-7877

Astronomy gear previously owned by Russell Sipe (former OCA President)

- Nextstar 8SE $1300 o.b.o.

The Nextstar 8SE is the largest-aperture scope of the NexStar SE series, the 8" provides over 1.5 times more light gathering power when compared to the 6SE. This scope comes with mount, tripod, controller, electrical accessories.

For Sale contact John Bartsch Text at (714)328-7877

Astronomy gear previously owned by Russell Sipe (former OCA President)

- Takahashi EM-10 mount with spreader but no tripod $ TBD

For Sale contact John Bartsch Text at (714)328-7877

Astronomy gear previously owned by Russell Sipe (former OCA President)

- Camera tripod $ TBD

- Takahashi Fluorite FS-102 D=102mm F=820mm $1000 o.b.o.

Accessories are for sale separately. Please look at the Takahashi EM-10 mount box for some parts Associated with this telescope.

For Sale contact John Bartsch Text at (714)328-7877

Astronomy gear previously owned by Russell Sipe (former OCA President)

- Filters, other accessories in padded case $ TBD
- Adapters (mostly) and other accessories with organizing box $ TBD
- Eye-pieces in padded case $ TBD
- Tripod spreader, sky chart, power supply ?, other accessories $ TBD

Contact me to inspect these items

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