SIRIUS ASTRONOMER

www.ocastronomers.org

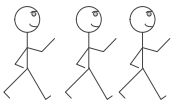
The Newsletter of the Orange County Astronomers

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

November 2025 Free to members, subscriptions $12 for 12 issues **Volume 52, Number 11**

Comet C2025A6 Lemmon captured on 3 October this year by Naveen Ravindar with 103mm refractor and ASI2600MM camera operated remotely at Star Front Observatories in Texas.

Upcoming Events - free and open to the public

Beginner's class	Friday, 5 Dec at 7:00 to 9:30 PM **ONLINE** 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.
Club Meeting 	Friday, 7 November at 7:30 to 9:30 PM **IN PERSON** and **ONLINE** "What's Up": . John Garrett from TVA **IN PERSON** Main speaker: . Liam Kennedy from OCA **IN PERSON** whose talk will be From OCA School Star Parties to 4K Cameras in Orbit ""
Astro-Physics SIG	Friday, 21 Nov 2025, at 7:00 PM to 10 PM **IN PERSON** Orange Coast College, Building 40, Astronomy House
Astro-Imagers SIG	Friday, 14 Nov at 7:00 to 10:00 PM **IN PERSON** Orange Coast College, Building 40, Astronomy House
Star Parties	Saturday, 15 and 22 November 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

OCA Election

Last reminder for this one – nominations end on the day of the November General Meeting, which is a week earlier than usual, on November 7. Once the ballot is final, please do get your vote in when the ballot goes live in December. As we've seen since we first tried out electronic voting about three years ago, that makes voting easy and convenient while also making it easier to get the votes counted. However, for those who prefer paper, we have that option as well, and you can either mail the ballot in or put it in our dedicated ballot box at the January meeting, which is the last day for voting.

On General Meetings…

Those of you who missed the October General Meeting missed a real treat – Dr. Jessie Christiansen, a fun Australian, currently at Caltech, who obviously was a good choice for Chief Scientist of the NASA Exoplanet Science Institute and who gave us an excellent talk on what is going on in the search for exoplanets, particularly for those that might be like Earth. Like many of our speakers, she's at the forefront of the research in her area and enthusiastic about sharing her knowledge and has a fun and informal style in sharing it.

She and Chris Butler, who gave us one of his great "What's Up" presentations in his own fun and informal style, were having a lively discussion before the meeting, one of the advantages of having them both at Chapman in person, and they played off of each other a bit in their talks. Those of us who were also there in person had the pleasure of being able to talk to both of them, as well – it made for a satisfying evening. The video of the meeting is available through the YouTube link on the homepage of our website; Chris' "What's Up" starts around 28:38 and Dr. Christiansen's talk starts around 47:07 – both are well worth viewing.

For those who don't generally attend our monthly meetings, talks like these from knowledgeable people on different astronomical topics are a real benefit our club provides to members and the public as part of our educational function. If you haven't been taking advantage of it, check the information on the speaker and talk posted on the website before the meetings and try coming to a few on topics that particularly interest you – you may find that it really enriches your overall astronomical experience. If you can't come to meetings at the scheduled times, most are posted on our YouTube channel so you can see them later (that archive is a great resource, as well).

On a Personal Note…

Every family goes through tough times, and this has been one of those times for mine. In less than two years we lost five family members, including our mother, stepmother, and now our father. It's true they had long and generally happy lives (respectively, they lived to 97, 98 and 100), and they left us many good memories, but it's a hard adjustment. My apologies for being distracted from club matters through this period, and my thanks for the kindness and support that many of you have given me.

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

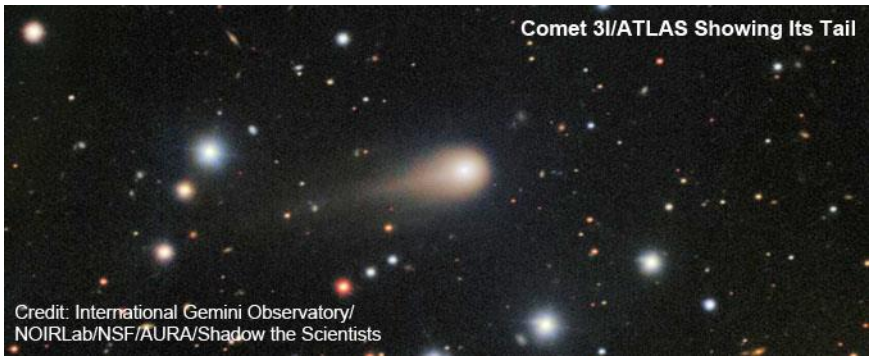
November 2025
Astronomy and space news summarized by Don Lynn from NASA and other sources

Rogue Planet Growing – Astronomers discovered in 2008 an object with 5-10 times the mass of Jupiter, which puts it definitely in the mass range constituting a planet, but it does not orbit any other body. This is being called a rogue or free-floating planet. Only dozens of rogue planets are known. The object is designated Cha 1107-7626 and is located about 620 light-years away in the constellation Chamaeleon. While it was being observed recently, it brightened substantially, due to a large amount of material being gravitationally pulled into it through an accretion disk. Astronomers calculated that 6 billion tons of material per second were falling in. It is the least massive object known to be growing this fast. Astronomers are debating whether this object will end up a planet, a brown dwarf, or a star. Once this has been decided, observations of it may change our theories of planet and star formation.

Rogue Planet Glowing – A team of researchers used the James Webb Space Telescope (JWST) to observe a rogue planet known as SIMP-0136 to determine the composition and temperature of its atmosphere. The planet was known to have auroras, from radio observations. This begs for an explanation because the planet does not have a star blowing stellar wind onto it. So, this aurora cannot have the same mechanism as Earth's auroras. Surprises were found from the observations. The rogue planet has a thermal inversion; that is, the atmosphere gets warmer as you rise through it rather than getting colder. The auroras are causing this by heating the upper atmosphere. The clouds in the atmosphere are sand vapor (it's pretty hot there in order to vaporize sand). SIMP-0136 is about 20 light-years away, a little larger in diameter than Jupiter, but with over 12 times Jupiter's mass. Its rotation period (its day) is only 2.4 hours long.

Exomoon Material – No exomoons (moons orbiting exoplanets, those planets outside our Solar System) have ever been definitely seen, but JWST has now observed a disk about a young exoplanet where exomoons are likely forming. The disk surrounds a gas giant exoplanet known as CT Cha b, which is about 625 light-years away. The JWST observations showed what materials are in the disk. This is a first case for such moon-forming disks. Seven carbon compounds were found within it. The disk surrounding the star, out of which planets are being made, does not contain carbon compounds. Astronomers are proposing theories to explain how such different compositions can occur in disks that formed so close in space and time to each other. Eight other circumplanetary disks are known, so JWST will be used to examine these to see if the one just studied is typical.

Heavy Water – Astronomers using the ALMA radiotelescope array in Chile have discovered heavy water in a planet-forming disk surrounding the young star V883 Ori. Heavy water is water containing the heavy hydrogen isotope (also called deuterium) instead of ordinary hydrogen. Most deuterium that exists now was formed during the Big Bang. So the heavy water may be billions of years older than the planet-forming disk that was observed.



Interstellar Object – The third ever asteroid or comet known to have entered the Solar System from elsewhere is known as Comet 3I/ATLAS. It was discovered last July. In October it made a fairly close pass by Mars. Several missions at Mars attempted observations of it. The European ExoMars Trace Gas Orbiter and NASA's Mars Reconnaissance Orbiter were successful. However, NASA's images cannot be released until the government shutdown ends. The JUICE mission on its way to Jupiter may also observe 3I. What may be even better than observing 3I from a distance, two other spacecraft, Europa Clipper and Hera, are predicted to actually fly through the comet tail of 3I. The latter spacecraft is on its way to observe the aftermath of the DART mission, which deflected the asteroid Dimorphos by colliding with it. The former is obviously on its way to Jupiter's moon Europa.

Early Generation Star – Immediately after the Big Bang, the Universe was composed almost entirely of hydrogen and helium. So, the stars that formed earliest after the Big Bang, if they are not massive enough to have created any elements past helium, should be distinguishable today by a complete lack of elements heavier than helium. Astronomers like to lump all those elements heavier than helium under the term "metals" (probably to confuse freshman astronomy students, who learned in chemistry class that oxygen and chlorine, just to name two, are not metals). Astronomers announced the discovery of the star with the lowest known metal content, making it the closest we have ever seen to the first stars that formed after the Big Bang. The star is known as SDSS J0715-7334 and is located in the outer reaches of the Large Magellanic Cloud, a neighboring galaxy to our Milky Way. Because it is not completely devoid of metals, it likely formed as a second-generation star, out of the supernova remnants of a first-generation star. It surprised many astronomers to find such a primitive star so close by. The more obvious place to find primitive stars would be billions of light-years away where the light we are seeing today came from stars that formed soon after the Big Bang.

Stellar Stream – Though the Vera Rubin Observatory has not begun its main task of imaging much of the sky every night, it has taken a number of test images, including a series of Virgo Cluster galaxies. A surprise in those images was the discovery of a rather large (about 160,000 light-year long) stellar stream coming from the large spiral galaxy M61. Such stellar streams are the results of past collisions with smaller galaxies, which are then stretched into streams by gravitational effects. The collision that caused the stream may be related to previously known features of M61, such as the central bar, a previous central star burst, or the active galactic nucleus. It is surprising that the stream was not previously seen in such a well-studied galaxy as M61.

Black Hole Merge Recoil – When two black holes collide and merge, huge amounts of energy are emitted as gravitational waves. If those waves happen to be emitted unevenly, then the resulting merged black hole will be recoil kicked to speed off in some direction. For the first time astronomers were able to measure the direction and speed of such a post-merge recoil. This was done by careful analysis of the data collected on the merge of two black holes in April 2019. That data was collected by both of the American LIGOs and the Italian Virgo gravitational wave detectors. The greater the difference in masses of merging black holes, the stronger the signal from the recoil, if the viewing angles of the various detectors are optimal. The April 2019 merger happened to have good viewing angles and a substantial difference in the masses of the participating black holes. The recoil was measured to be in excess of 31 miles per second. This speed is sufficient to escape the gravity of the globular cluster where the merger occurred.

Repeated Black Hole Mergings – Two of the dozens of black hole mergers seen by the 4 gravitational wave detectors stand out as unusual. Those two, denoted GW241011 and GW241101, involved mismatched masses, high rates of spin compared with other mergers and spin direction mismatched with the orbit of the two merging objects. These characteristics are theoretically rare among black holes that formed from star collapses, but should be common among black holes that formed from previous mergers. The discovery of these two mergers implies that repeated mergers of black holes are reasonable common. In theory, repeated black hole mergers could only occur in very dense star clusters, where the probability of hitting another black hole is high and the probability of a merger causing a recoil that leaves the cluster is low.

Tidal Disruption Event – When a star passes too close to a black hole, the intense gravity can tear apart the star in what is known as a tidal disruption event (TDE). Such events typically occur at the center of a galaxy where a supermassive black hole is nearly always found. A team of astronomers observing with radiotelescopes found a TDE occurring 2600 light-years from the center of a galaxy, implying there is a supermassive black hole not at the center of that galaxy. The TDE is known as AT 2024tvd. It is the fastest evolving TDE known. Twice during recent observations the radio signal has suddenly flared. The flares were apparently caused by outflows, that is, material that was falling in was deflected to beam away from the black hole, probably by magnetic fields. If it were not for the TDE, this black hole would not be producing enough light of any kind to be detectable. Astronomers are wondering how common hidden black holes are. The TDE was discovered by the Zwicky Transient Facility, a program that uses the Palomar Schmidt camera to repeatedly scan the sky for changes.

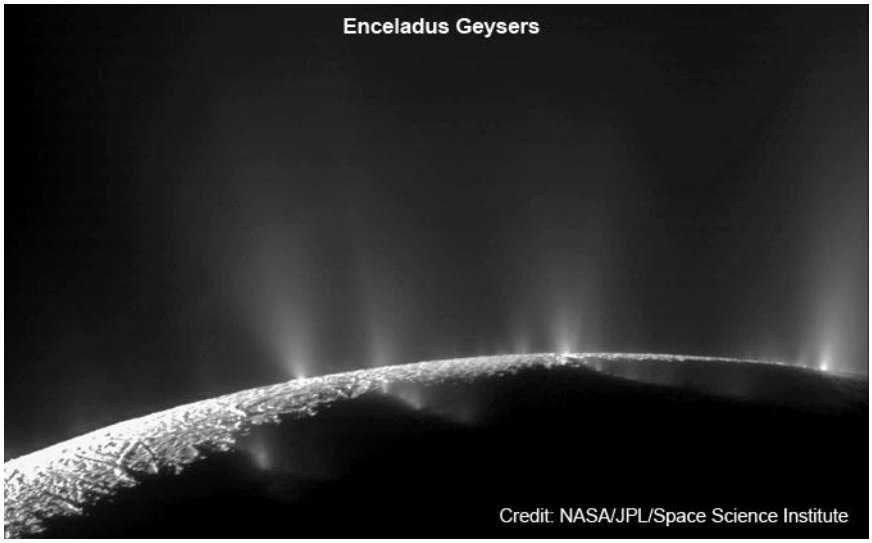
White Dwarf Consuming Planetary Material – In a similar manner to a TDE, but on a smaller scale, a white dwarf star can tidally tear apart a planet that ventures too close. More than 1000 white dwarfs have been found with planetary material on their surface, which indicates that they tore apart a planet or perhaps asteroid in astronomically recent times. Hundreds have been caught in the act of consuming planetary material. Another white dwarf consuming material has been found, but what makes this case unusual is that the white dwarf is 3 billion years old, and astronomers didn't think the consuming process would go on that long after an ordinary star transformed into a white dwarf. The star is known as LSPM J0207+3331 and is located 145 light-years away. The system has a metal-rich debris disk orbiting the white dwarf. The white dwarf itself has enough planetary material on its surface to evidence that a body at least 120 miles across was recently consumed. Further study is needed to determine what phenomenon is disrupting planetary orbits such that they pass too close to the white dwarf at this age.

Pulsar Wind – The XRISM X-ray space telescope was used to observe winds from a pulsar (spinning neutron star that appears to pulse with each rotation). The pulsar is known as GX 13+1 and is located in Sagittarius about 23,000 light-years away. The pulsar has a massive giant star companion. They orbit each other in about 24 Earth days. The pulsar has an accretion disk about it formed from infalling material. But it also has outflowing material, perhaps caused by a magnetic field. The combination of these features makes it appear as a miniature version of the area surrounding a supermassive black hole. Just before the observation session, the pulsar began to brighten. The pulsar wind was slower than expected, at only about 0.6 million miles per hour. The wind was found to be smoother than those about black holes.

Quasar Close Up – Astronomers used the 4 Very Large Telescopes in Chile as an interferometer, along with adaptive optics to compensate for atmospheric motions, to observe finer detail than previously seen in a very distant quasar. It is the most luminous quasar known, and it is so distant that its light takes over 12 billion years to reach us. The mass of the black hole powering the quasar was measured at about 800 million solar masses, which is much smaller than previous estimates based on brightness. This may imply that astronomers are consistently over-estimating masses of supermassive black holes seen in the early Universe. Another surprise was that 80% of the gas seen around the quasar is being thrown outward rather than orbiting in an accretion disk.

Dark Matter Lump – A team of astronomers using a network of radiotelescopes across the world have discovered a lump of dark matter with a mass about a million times that of the Sun. The astronomers were observing a more massive object known as JVAS B1938+666 that was known to produce gravitationally lensed views of objects behind it. Analysis of how it bent light from behind showed this lump of dark matter. The lensing object is so distant that radio light took over 7 billion years to reach us. The newly discovered lump of dark matter is the lowest mass of dark matter known in the distant Universe.

Enceladus Chemistry – New study of old data from the Cassini mission has identified more chemicals in the material ejected by the geysers on Saturn's moon Enceladus. The newly identified chemicals included chains and rings of carbon atoms, sometimes with oxygen atoms. The scientists in the study stated that this is not proof of microbial life, but only proof that chemistry that might be friendly to life is present in Enceladus' ocean.



Near-Sun Asteroid – Astronomers discovered an asteroid whose orbit is almost entirely within the orbit of Venus. Only one other asteroid is known with a similar orbit. Such asteroids are extremely difficult to find because they are almost always in the same direction as the Sun, as seen from Earth. Astronomers debate whether we can't find asteroids orbiting close to the Sun or if they are rare in reality. Some theorists hold that the YORP effect, which spins up asteroids from the effects of sunlight, will destroy many asteroids orbiting near the Sun. The new find is designated 2025 SC_{79}. Its orbital period (its year) is only 128 Earth days, the 4th shortest of any known asteroid. It is estimated from its brightness to be roughly 0.4 mile across.

Moonquakes and Landslides – A new study of 15 years of lunar images was made to locate lunar landslides and determine their causes. The study found 41 landslides that had occurred since 2009. Only 29% of these had a new meteoroid strike near them, so the landslide cause of those could be a meteoroid strike, though some of those statistically had to be coincidences, not causes. For the other 71%, the likely cause was determined to be moonquakes. Other causes, such as thermal weathering, were ruled out. Most of the new landslides were clustered around the eastern Imbrium Basin. Seismometers placed on the Moon during Apollo missions had shown moonquake activity in this region. The new study supports that such activity in this area has continued to the present. It also shows that planning for future Moon bases should take into account avoiding seismically active regions.

Ariel Ocean – New analysis of surface features on Uranus' moon Ariel shows evidence that in the past there was a sub-ice ocean about 100 miles deep. It is not clear how long that ocean may have persisted. The new study used computer simulations of stresses induced on the surface by tidal forces generated by Ariel's slightly non-circular orbit. Without an ocean in the simulations, the forces didn't create the kind of surface features seen today. Previous work has shown that Ariel's sister moon Miranda likely has a sub-ice ocean.

Retrograde Rotation – Observations made by the New Horizons spacecraft (the Pluto mission) of 8 objects in the Kuiper Belt (the region somewhat beyond Neptune's orbit) showed that 5 are likely contact binaries (two nearly separate bodies barely touching each other). Surveys taken from Earth have found only about 10-25% of Kuiper Belt objects are contact binaries. Most of the 5 contact binaries in the new study were found to rotate retrograde, that is, they spin opposite to their direction of orbital motion. This is probably a clue to how contact binaries form.

Starship Test Flight – SpaceX's Starship with Super Heavy booster completed its 11th test flight in October with all tests successful. It is by far the largest and most powerful rocket ever flown. The next Starship test flight will be with an upgraded version, including refueling in space capability. Refueling will be required in order to use Starship as the lunar landing and relaunch vehicle for the Artemis III return to the Moon.

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.

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**
December	29 November
January 26	27 December
February	31 January
March	28 February

Astroimaging Special Interest Group

Due to several conflicting issues with both the usual OCA meeting and the OCC planetarium schedule this month, we will hold the next astroimaging meeting on November 14th at the usual time and place at OCC.

However, the attendance at the in-person meetings have dropped significantly (only 4 of us showed up last month). Several of the active members have moved away or have other conflicts on Fridays. Since the online group activity has been very busy, and getting busier, we may discontinue the meetings at OCC next year.

News About Our Anza Site

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.

The pads comprising the Lower Pad area are going to be broken up and removed in the near future. The electrical power is also being removed. All affected pad owners have been notified and picked new locations from available pads in the other areas.

There are still 9 piers from Lower Pads that need to be moved to their new locations before the old pads are destroyed. Owners needing some physical help moving their piers may coordinate through OCAstronomers@groups.io . The club keeps a wrench for the pier bolts in the Upper Pads warming hut, though this would only be accessible when one of the Upper Pads owners is onsite.

Weed Control:
Plants are growing, not just grasses and weeds. Those of you who have areas of responsibility at Anza should monitor for this regrowth. This bush grew from bare earth since the earth-scraping done in 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