SIRIUS ASTRONOMER

www.ocastronomers.org

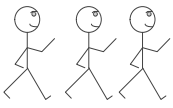
The Newsletter of the Orange County Astronomers

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

February 2026 Free to members, subscriptions $12 for 12 issues **Volume 53, Number 2**

M83 galaxy from Tom Bash. Taken at Bear Valley Springs, CA using a Celestron EdgeHD 11 and SBIG STL-1301E camera in May 2018.

Upcoming Events - free and open to the public

Beginner's class	Friday, 6 March at 7:00 to 9:00 PM **ONLINE** This is session 1 of the class: Overview of celestial objects, current scientific understanding of the Universe's beginning, present and future.
Club Meeting 	Friday, 13 February at 7:30 to 9:30 PM **IN PERSON** and **ONLINE** "What's Up": John Garrett from TVA **IN PERSON** Main speaker: Dr. Stephen Kane from UC Riverside **IN PERSON** whose talk will be "Planetary Habitability in the Solar System and Beyond"
Astro-Physics SIG	Friday, 20 February, at 7:00 PM to 9 PM **IN PERSON** Orange Coast College, Building 40, Astronomy House
Star Parties	Saturday, 14 February at the OCA Anza site. Coming soon at Irvine site – tentatively. See more in the President's Message

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

Theoretically, we're in the depths of winter right now – but, at least as I write this, we seem to be celebrating it California-style, with temperatures ranging from comfortable near the coast to hot inland, unlike other areas of the country. If our star party nights are clear, though, they will probably be pretty cold, even if the days are warm, that being the price of not having cloud cover.

2026 Messier Marathon

Speaking of star parties, we have two Anza star parties in March, on the 14th and the 21st, as New Moon is on the Wednesday between them. The Spring Equinox is on March 20th, so that second star party should be good for the Messier Marathon, as it is supposed to be easier to see all of the Messier objects in one night close to the equinox, plus there will be minimal moonshine. March is known for chancy weather, though, so, if you're aiming to do the Marathon this year, you may want to do it on the first star party night if it's clear, in case the second is clouded out – there's no reason you can't do it both nights if conditions are good. You could actually do it any time into early April, though the moon will become more of a problem as full moon is April 1.

We have a Messier Marathon form on the OCA website, with a suggested order for looking for objects, and an information sheet – just do a search for "Messier Marathon" on the website if you don't see a link from the homepage.

If you're fairly new to the hobby, the Messier Marathon is a great way to introduce you to a lot of objects you may not have looked at before. If you're more experienced, it can give you a chance to revisit objects you may not have looked at in a while. Either way, it's a fun activity and I hope you'll try it this year.

Orange County Star Party

We are finally on the brink of having regular star parties in Orange County again – this is an activity that we have had multiple problems getting re-started after Covid. On January 23, Alan Smallbone and I were able to visit the site that OC Parks suggested as a better alternative to the site we had been using pre-Covid. Charlie Oosdyk had visited it earlier, and we all agreed with the OC Parks representatives that it should be a good location for us.

They are allowing us more flexibility in determining how we want to use the space than in some of our past locations. This should allow us to arrange the parking so people can set up near their vehicles, which would be much more convenient than having to carry equipment to a set-up area. And we can also use some additional areas beyond the main field, so we can have a lot more people attend without crowding.

We are hoping that our first Orange County Star Party in this new location will be on March 14, but we still have some problems with the permit that Charlie and Alan are working on. Stay tuned for updates…

We do need some volunteers to help with these events – if you'd like to help out, please email Alan at Alan@ocastronomers.org.

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

February 2026
Astronomy and space news summarized by Don Lynn from NASA and other sources

The Dark Energy Survey (DES) using the 4-meter Blanco Telescope in Chile was completed and its final data release was made. DES measured weak gravitational lensing, the clustering of galaxies, baryon oscillations and Type Ia supernovas over one eighth of the entire sky. Each of these measurements should be affected by the strength of dark energy. It produced the most comprehensive measure ever of dark energy. The results, however, were not precise enough to distinguish between constant dark energy and dark energy that varies over time. Neither type of dark energy was able to produce the smoothness of galaxy clustering that was observed. A byproduct of the survey was a catalog of galaxies with 669 million entries.

Primitive Galaxy – The nearby dwarf galaxy Sextans A is a chemically primitive galaxy. That is, it contains very little of the heavier elements that stars in most other places have created and dispersed over the life of the Universe. So, astronomers have been studying Sextans A in hopes of finding out how galaxies behaved in the early history of the Universe, when all galaxies had low amounts of heavier elements. The James Webb Space Telescope (JWST) observed Sextans A and unexpectedly found large amount of PAHs, which are a type of large carbon-containing molecules. Other surprises were iron dust and silicon carbide. This finding shows that chemically primitive galaxies can form dust of these compositions, and therefore simulations of how early galaxies evolved will have to take these into account. Silicates, the usual kind of dust in most galaxies today, were not found in Sextans A, as expected.

Odd Galaxies – A team of astronomers has searched through archived images from JWST using a computer program that identifies unusual objects and it found 9 galaxies that appear tiny, nearly points of light, but do not have the spectrum of a quasar, the most common point-like type of object. Because they are difficult to classify, the astronomers call them platypus galaxies, after that animal which is difficult to classify. They are all so distant that their light took 12 to 12.6 billion years to get here. Their spectra show slower gas movement than occurs around black holes. One theory explaining them is that they are extremely small galaxies with high rates of star formation. More study of these or finding more examples may explain these objects.

More Odd Objects – Another study using an Artificial Intelligence computer program to find unusual objects in Hubble Space Telescope (HST) archived images found 1300 odd objects, 800 of which had not been previously documented. Many of the oddities were interacting galaxies, but gravitational lenses and edge-on planet forming disks were also common. In the past humans have examined images to find the oddities, but the sheer number of HST archived data (nearly 100 million) made the use of a computer necessary. In the future, observatories including the Roman and Rubin will be turning out horrendously large amounts of data, and this computer search technique will have to be heavily used.

Supermassive Black Holes – Most large galaxies that have been studied carefully have been found to contain a supermassive black hole at their center. Many astronomers believe that all large galaxies have such black holes, but the few where we haven't found such are simply obscured from our view. But for small dwarf galaxies, it looks like many do not have central black holes. There are two main theories of how supermassive black holes form: 1) a massive star collapses to a black hole and then it grows by pulling in huge amounts of matter; 2) a very massive object, perhaps a gas cloud, collapses to form an already massive black hole. Depending on which theory holds, that should change the fraction of dwarf galaxies that have supermassive black holes. A new study of more than 1600 galaxies done in X-ray light attempted to determine the fraction of galaxies with black holes. Identifying black holes in X-rays tends to work well even for black holes that are not currently feeding on large amounts of matter. About a third of dwarf galaxies were found to have supermassive black holes. The result of this study tends to favor the collapse of a large object theory.

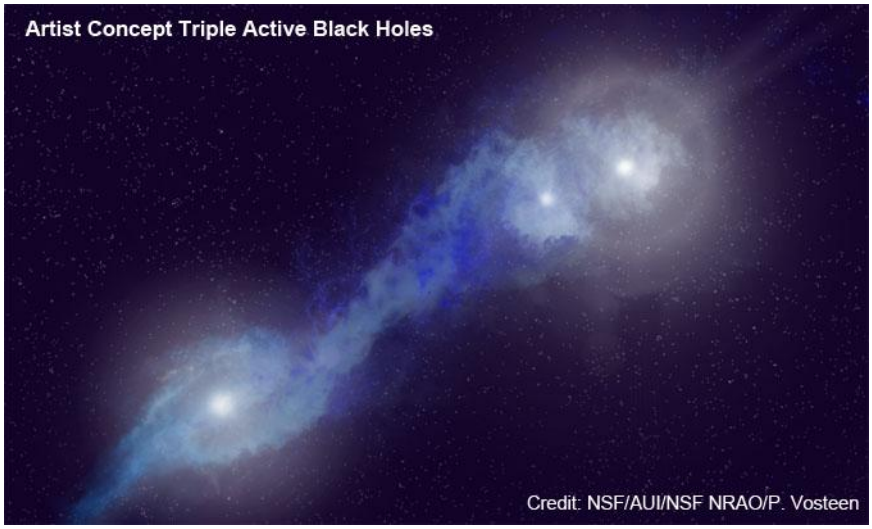
Active Supermassive Black Holes – Another study of supermassive black holes examined 8000 nearby galaxies, but was designed to determine what fraction are active, that is, currently feeding on substantial material falling in. This study found that between 2% and 5% of dwarf galaxies and between 16% NS 27% of Milky-Way-sized galaxies have active supermassive black holes. The numbers for dwarf galaxies are particularly higher than previous counts. This may be due to more sensitive observation methods used to find the black holes. It is not clear what is causing the wide difference in frequency between dwarf galaxies and Milky-Way-sized ones.

Supermassive Black Hole Observed – The XRISM X-ray space telescope was used to observe the supermassive black hole at the center of galaxy MCG-6-30-15. Seen were outflowing streams and the relativistic effects of extreme gravity. The material falling into the black hole from the accretion disk was measured to be moving at nearly the speed of light. The spin of the black hole was calculated from X-ray spectra data and found to be quite rapid. Astronomers plan to use XRISM to observe other active black holes because of its superior precision in measuring spin and other properties.

Black Hole Seesaw – Not all the material drawn in by the huge gravity of a black hole ends up disappearing into the black hole. Some of that material is thrown back outward in jets and some is blown outward by X-ray winds. A new study shows that the winds and jets alternate, so both do not happen at the same time. This is being called a seesaw effect. This study observed a black hole system known as 4U 1630-472, which is in a binary relation with an ordinary star. Material from the companion gets pulled into the black hole, which has about 10 times the Sun's mass. The observations were made with the NICER X-ray space telescope, which resides on the International Space Station. It appears that the total material cast off remains at a roughly constant rate even as the method of being thrown out seesaws.

Active Galaxy Observed – JWST was used to observe the Circinus Galaxy, one of the nearest active galaxies (that is, pulling substantial matter into its central supermassive black hole), at a distance of about 13 million light-years. Even though the inner regions such as the accretion disk cannot be resolved, much information about those regions was gleaned from observation over a wide range of wavelengths and through the use of the interferometer mode of JWST. The observations suggest that most of the dusty material about the black hole is falling in rather than being outflowed in winds or jets.

Triple Active Galaxy – The first case of 3 radio-emitting active supermassive black holes was announced. It came about as 3 galaxies collided and are merging. The system is known as J1218/1219+1035 and is about 1.2 billion light-years away. Only 2 other triple active galaxy systems are known in the nearby Universe, but they are not radio-emitting. The system was believed to be interacting galaxies since it was seen in infrared data from the WISE space telescope but later found to be a triple. More observations in infrared and X-ray of the system are planned.



Failed Galaxy – The Very Large Array (VLA) of radiotelescopes in New Mexico has confirmed a cloud of hydrogen gas, originally found by the giant FAST radiotelescope in China, and the cloud is large enough to form a galaxy. But follow up observations of it made with HST showed that it contains absolutely no stars. Calculations show that in order for the gas not to have dissipated, there must be a galaxy's worth of dark matter there. The conclusion is that for some reason, maybe low density, the dark matter and gas did not form a galaxy of stars. It is the only confirmed object of this kind. But the discoverers expect that there may be many such objects, and they just haven't been found yet. They have nicknamed the object "Cloud-9" because in fact it was the 9th gas cloud examined in a radio study of gas clouds near the galaxy M94. It is 14 million light-years away.

Farthest Galaxy – Once again JWST has broken its own record and found the farthest known galaxy. This one is so far that its light left it when the Universe was only 280 million years old (2% of its current age). It is known as MoM-z14, where the z14 means it has a redshift of 14 (more precisely 14.44), which indicates that since the light left there the Universe has expanded to 14.44 times larger than it was. Like all the other really distant galaxies, this one is brighter, larger and has more nitrogen than astronomers can explain.

Fast Radio Bursts (FRBs) originate outside our galaxy (with one exception) and typically last a fraction of a second. They must be extremely intrinsically bright to be seen from such a distance. The source of FRBs is still under debate, though many astronomers believe that magnetars (extremely magnetic neutron stars) are involved. New observations of a repeating FRB with the FAST radiotelescope in China show that at least some FRBs originate in binary star systems, likely consisting of a magnetar and an ordinary star. Polarization changes observed matched those expected if an ordinary star threw off a coronal mass ejection that passed in front of a magnetar.

Possible Betelgeuse Companion – It has long been suspected that supergiant star Betelgeuse has a smaller companion star orbiting it because of an otherwise unexplained period of brightness variation. Searches have come up empty, probably because the companion is too dim and too close to Betelgeuse. Speckle interferometer observations last year showed a possible object next to Betelgeuse but it was not considered strong enough evidence for a discovery. New ultraviolet spectral observations show what simulations demonstrate would be seen if an orbiting object passed through Betelgeuse's outer atmosphere, leaving a wake there. The period matches that seen in the brightness variations. It's still not a discovery, but it's fairly strong evidence of a companion star. This companion star would be unrelated to the great dimming of Betelgeuse in 2019-2020, which was apparently caused by a mass ejection from the primary star.

Blue Stragglers – In old star clusters there are often a few stars that appear brighter, bluer and younger than the other stars in the cluster, even though all the stars in most clusters are believed to have formed at the same time. These oddballs are known as blue straggler stars. A new study observing in ultraviolet and using HST sheds light on how blue stragglers formed. The study showed that blue stragglers are more common in uncrowded clusters. This tends to support the theory that blue stragglers formed from double stars and works against the theory that blue stragglers formed from passing stars colliding. It is not clear yet whether binaries siphon material from their companion or merge with their companion to form the blue stragglers. The new study found more than 3000 blue stragglers in 48 globular clusters of varying degrees of crowding.

Disappearing Star – A star known as J0705+0612 dropped to 1/40 of its previous brightness for 8 and ½ months ending in May 2025, and then recovered in brightness. Two studies both concluded that the star is a binary, and its companion has a disk about it that blocks its light during part of their orbiting. Properties of the primary star give conflicting values for its age. The secondary object seems young in order to have retained a disk. Or it is possible that the disk was created later than its star by a planetary collision. Therefore, much more work is needed to fully understand this system. Searching Harvard records showed this dimming had also occurred in 1937 and 1981, but apparently no one made note of it. This implies that the secondary orbits every 44 years. An object with a disk this size could be anywhere in mass between a large planet or a small star.

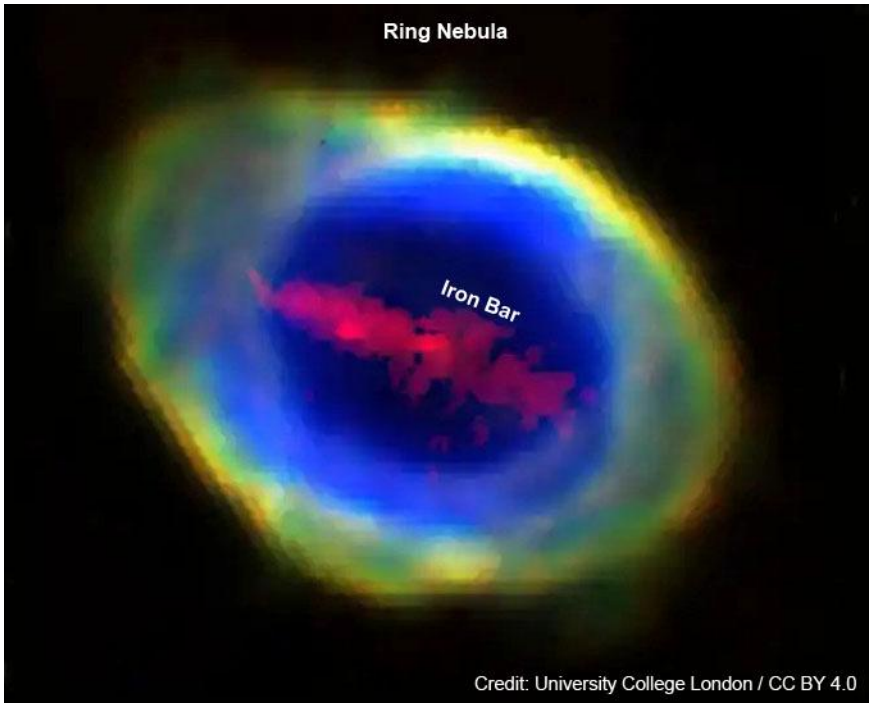
Rogue Planet Mass – There are known to be planets that don't orbit stars, and they are known as rogue planets. Few are known because they are so dim and we don't know where to look for them. Another was discovered when it gravitationally lensed the light of a star that it happened to pass in front of. Many telescopes, including the Gaia space telescope, observed this. From all this data, astronomers were able to accurately calculate the rogue planet's distance (about 10,000 light-years) and mass (somewhat less than the mass of Saturn). This was the first accurate measurement of a rogue planet mass. With the planned Nancy Grace Roman and other space telescopes, it should be possible to measure the masses of many rogue planets. Knowing the distribution of masses may allow astronomers to determine how rogue planets likely form and/or escape from their systems.

Lensed Superluminous Supernova – Astronomers have seen several supernovas through gravitational lenses caused by one or more galaxies that happen to lie in front of the supernova. This magnifies and brightens the supernova, allowing much better resolution in observing it. Now astronomers have observed for the first time a lensed superluminous supernova, a type of supernova that is 10 to 100 times brighter than typical. The object is known as SN 2025wny. It is so distant that its light took 10 billion years to reach us. Without lensing this explosion would be too faint to detect. The lensing also allowed imaging the galaxy where the supernova took place. It appears to be a dwarf galaxy with much star formation occurring and low content of heavier elements. Astronomers believe that this type of environment is where superluminous supernovas are more likely to occur. The lensing causes multiple images of the supernova, each of which appear to explode at different times, because their light paths are different lengths. The delay between the explosions in the multiple images depends on the expansion rate of the Universe (the Hubble Constant) among other things. This allows calculation of the Hubble Constant that is independent of all other methods. This will be calculated when all the observational data is in.

More Lensed Supernovas – A similar situation exists for an ordinary (not superluminous) supernova nicknamed Ares, which is being gravitationally lensed by the MACS J0308 galaxy cluster. Calculations show that two of Ares' multiple images have yet to arrive. But don't hold your breath for results, as astronomers predict the last image will take about 60 more years to arrive. Ares is so distant that its light left there when the Universe was about 1/3 of its current age. Ares has been observed with JWST in the VENUS project, which aims to look through 60 gravitational lenses with JWST. More lensed supernovas are being found in this project. One such supernova nicknamed Athena is expected to have another of its multiple images show up in only a year or two.

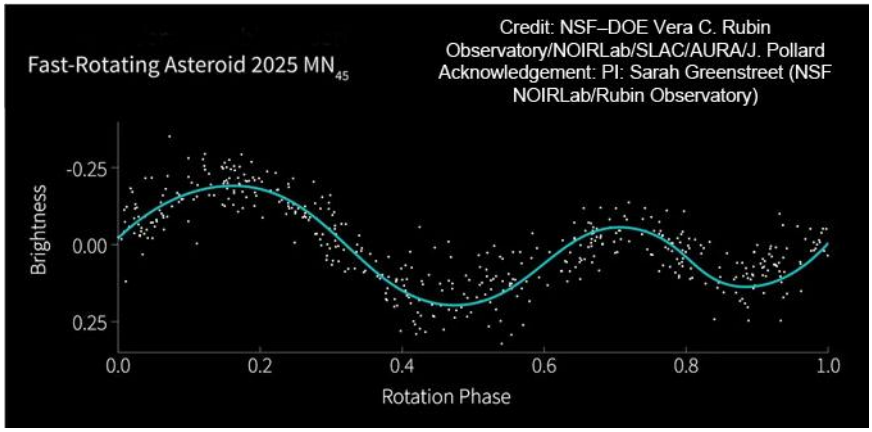
Novas Observed – A few years ago, astronomers happened to catch two novas quite soon after they began exploding, so they were able to train many telescopes on them for most of their explosions. In one case they got images with the CHARA interferometer array of telescopes on Mount Wilson for super high resolution images as the explosion proceeded. Novas are known to be caused by hydrogen falling on the surface of a white dwarf star until it ignites as a nuclear bomb. Astronomers were surprised that the explosions are more complex than thought, with multiple outflows and delays between stages of the explosions. One of the novas was in Hercules and the other in Cassiopeia. The Hercules one showed two outflows in nearly perpendicular directions. It was among the fastest novas ever in its brightening and fading. The other nova was much slower, waiting about 50 days before expelling its outer layers. The Fermi gamma-ray space telescope observed gamma rays created by shocked material flowing out of the novas. Spectra taken by Gemini and other telescopes showed what gases were being thrown off during the process.

Iron Bar – The Ring Nebula (M57) was observed for the first time that used an integral-field spectrograph. That instrument simultaneously takes a spectrum of every pixel of an image. This spectrograph is known as WEAVE and was recently installed on the William Herschel Telescope in the Canary Islands. The Ring is a planetary nebula, which is expelled from a Sun-like star near the end of its life. Astronomers were surprised to find that there is a bar across the middle of the ring that contains only ionized iron vapor. The star that created the ring should never have made any iron because of its small size. Astronomers calculated there is enough iron in the bar to make a Mars-sized planet. One theory on the source of the iron is that it was a planet that was somehow destroyed. One other planetary nebula, NGC 6818, is known to have an iron bar.



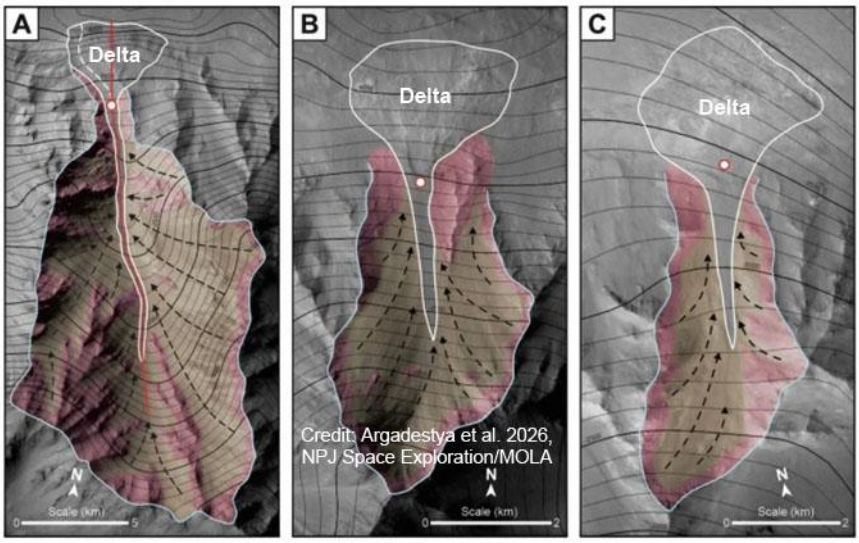
Protostars – Using the ALMA radiotelescope array in Chile, astronomers have found a double bridge of gas and dust connecting two protostars (stars still in the process of forming). They lie about 1000 light-years away and are designated L1448 IRS3A and L1448 IRS3B. Computer simulations show that the bridge was likely formed when the two protostars passed close by each other about 15,000 years ago. Observation of protostars is difficult because they are usually obscured by surrounding gas and dust, but some wavelengths of radio have been found to penetrate this.

Fast Rotating Asteroid – Images from the Vera Rubin Observatory in Chile showed the discovery of an asteroid with the fastest known rotation of any sizable asteroid (defined as over half a kilometer [1640 ft]). It is known as 2025 MN_{45} and rotates every 1.88 minutes. It orbits in the main asteroid belt and is about 2300 feet long. 18 other fast rotating (but not quite as fast) asteroids have been found by the Rubin. All but one of them are in the main asteroid belt. Very few sizable asteroids spin faster than 2.2 hours because they tend to break apart by centrifugal force unless they are a single solid rock.



Comet Mystery – One of the long-standing astronomical mysteries is why comets, which form only in the cold outer Solar System, contain crystalline silicates, which form only in very hot places near the Sun. Observations by JWST of a protostar called EC 53 have explained this. Crystalline silicates were found forming in the hottest inner part of the disk, as expected, but the observations also found a very strong stellar wind and jet carrying material from that hot inner part to the cold outer part where comets could form. EC 53 is located in the Serpens Nebula about 1300 light-years away, which contains many protostars.

Warm Wet Mars – A new study of certain features in Valles Marineris on Mars showed that 3 of them are almost certainly deposits left by rivers flowing into bodies of water. They are about the same elevation, so were likely flowing into the same body of water. This elevation would result in an ocean covering much of northern Mars. The features formed roughly 3 billion years ago. This adds to much other evidence that billions of years ago Mars had bodies of water and flowing rivers and therefore was much warmer than now.



Exoplanet Mission – The Pandora mission was launched into a near-polar Earth orbit in January. It is a relatively small satellite intended to observe in visible and infrared light 20 exoplanet-hosting stars and learn about those planets' atmospheres. It is designed to be able to separate features on the stars from features in their planets' atmospheres. The selected stars are all smaller than our Sun and their planets range from Earth sized to Jupiter sized. Most of the selected stars have already been observed by JWST, but Pandora will spend much more time observing them. Pandora has a 20-inch telescope for its observations.

Space Station – The 4-person crew at the International Space Station (ISS) known as SpaceX Crew-11 returned to Earth early due to the medical condition of one of them (not specified who due to medical privacy). They landed January 15 rather than the originally planned mid February. They were still able to complete more than 140 planned experiments in their 167 days in space. The Crew-12 launch to replace them is scheduled for February 12. There are 3 people running ISS until then.

News About Our Anza Site

Lower Pads Area
There is some electrical work to complete related to the wiring that previously served this area.

Repair of the gully between 10 Pad Alley and Jupiter Ridge has been started.

Kuhn Shipping Container Cleanup on Saturday, 21 March
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. We don't need a lot of labor, just a few people will be enough to move things in and out of the container. There will be some items disposed of as trash and one or two volunteers to haul those things to the dump would be appreciated.

There is a gas-powered generator in the shipping container. Does anybody remember when it may last have been used (and how it performed at the time) ?

Same question applies to a gas-powered wood chipper.

Dealing With Weeds
The club's field mower seems to be missing a critical part, called the Wagner Anti-wrap Bracket, and a replacement has not been found yet either online or through the manufacturer. If the part cannot be obtained by the time we clean up the Kuhn shipping container, we will evaluate alternatives for keeping the weeds in check.

Because of the wet winter, the soil is well moisturized and will enable a lot of early season weed growth. Pad and observatory owners should plan on doing harsh weed suppression by March before it gets entirely out of control.

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**
March	28 February
April	28 March
May	25 April
June	30 May

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

- 4" Celestron f9.8 Refractor with heavy duty Celestron ALT-AZI mounts and slo-mo cables, Red dot finder, star diagonal, 2 lenses $100
- Celestron Luminos 7, 10, and 15 mm 1 1/4 " eyepiece set in padded Apache case $150
- University Optics 1 1/4" eyepiece set with Meade RG lenses - (hard to find!) 8 eyepieces with case $100

For Sale contact David Tassey tasdave@cox.net

- ZWO AM5 mount, purchased 2024, lightly used and looks new. Low 8.8/3.6 arc-sec periodic error $1000
- ZWO AM5N mount, new - purchased less than 3 months ago. I'm upgrading to AM7 so my loss, your gain $1500
- ZWO ASI 2600mc duo camera, lightly used $1000

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