SIRIUS ASTRONOMER

www.ocastronomers.org

The Newsletter of the Orange County Astronomers

April 2022 Free to members, subscriptions $12 for 12 issues **Volume 49, Number 4**

The nebula CED 214 imaged by Leon Aslan from the club's Anza site in September 2021.
Camera used was ASI2600MC through a Celestron RASA 11 inch telescope.

Because of the COVID-19 crisis and ongoing efforts to reduce exposure to the virus:

- **Most but not all in-person club events are cancelled**
- **Use of the Anza site is discouraged**

Please read more about how OC Astronomers has modified its activities on page 2.

Upcoming Events - free and open to the public

Beginner's class	Friday, 6 May at 7:30 to 9:30 PM This is session 3 of the class. It covers methods of finding objects in the night sky. Class materials can be downloaded from OCA website.	ONLINE
Club Meeting	Friday, 8 April at 7:30 to 9:30 PM "What's Up?": John Garrett from TVA Main speaker: Ethan Siegel whose talk will be "The End of the Beginning"	ONLINE
Open Spiral Bar	Saturday, 9 April at 10:00 to 11:30 PM Want to socialize? Grab your images, experiences, questions, or none and see your fellow Orange County Astronomers face-to-face.	ONLINE

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

Response to COVID-19 Crisis

COVID-19 continues to affect all our activities. Some in-person club events remain cancelled while others are beginning to occur or are in the process of being scheduled. Cancellation periods for specific events are detailed below. Please see the President's Message for additional information.

Any use of the club's Anza site by members is at their own risk as we have no way of cleaning or sanitizing the site to CDC standards. If you must go to the site, be sure to clean and sanitize surfaces you have contact with and make sure it is cleaner when you leave than it was when you arrived. You must bring cleaning supplies and sanitizer with you as it is not provided at the site. Be sure to take any trash that you generate or find on the site out with you and please maintain social distancing if anyone else is out there.

If you have any questions, feel free to contact board members or post them to the email groups or through social media. We will do our best to respond, but please bear with us if there is a delay as we all have other responsibilities as well.

We hope you and your families and friends all remain safe and healthy, and best wishes to all of you!

Summary of Cancellations of OCA In-Person Events

Due to the ongoing COVID-19 crisis, all in-person club events are cancelled through at least the following periods:

General Meetings	Cancelled until further notice; please try our virtual meetings instead.
Anza Star Parties	Not yet, more said in the President's Message.
Orange County Star Party	Cancelled until allowed by Orange County Parks.
Outreaches	Please check with our Outreach coordinator Cecilia Caballero
Beginners Astronomy Class	Held only as Zoom meetings. Please contact Dave Pearson to attend.
SIG Meetings	Astrophysics SIG has resumed meeting in person. AstroImaging remains cancelled indefinitely, depending in part on availability of facilities and when meetings could go forward safely.

Please check the website, email groups and social media for updates.

From the Editor

Sirius wants photograph submissions from club members

Sirius is running low on pictures. Please send pictures to me along with a brief description of the subject, where the image was taken, and the equipment used.

Ideas for Future articles

The newsletter includes articles from members or about subjects suggested by our members. We seek ideas and writers to cover them. To contribute an article or work with the editor to produce one, please contact me at newsletter@ocastronomers.org .

Due dates for submission of articles, pictures and advertisements

Issue	Due date
May	23 April
June	21 May
July	18 June
August	23 July

President's Message

By Barbara Toy

March is usually the month we talk about the Messier Marathon, where eager participants try to view as many Messier objects as possible in one night, and sometimes manage to view all 110. This is best done close to the spring equinox, March 20, which will be long past by the time you see this, but if you want to see a lot of Messier objects in one night there'll still be a lot around if you're looking in April.

Sorry I forgot to mention that fine tradition in the March President's Message – but the weather generally wasn't all that good for viewing in March, what with wind and clouds and sometimes even a bit of rain, and the period with the best shot of finding all of the objects in one night was also very moony, with full moon only two days before the equinox (plus in many areas there was rain that weekend). So maybe it was a case of no harm, no foul, not reminding people of that bit of astronomical fun. I expect that those of you who enjoy doing the Marathon even in less-than-optimal conditions would do it whether it was mentioned here or not…

Tim Hogle to Receive the G. Bruce Blair Award

On to some really great news – one of our club's founding members, Tim Hogle, who worked for years on the Voyager program at JPL and has also been active in many different aspects of amateur astronomy. Tim has been selected as this year's recipient of the G. Bruce Blair Award. I hope the full summary of his history and achievements that Helen Mahoney wrote, which was presented to WAA and helped them make that very appropriate selection, appears elsewhere in this issue of the Sirius Astronomer – if not, please look for it in an upcoming issue.

This award celebrates achievements in amateur astronomy and outreach. As our current WAA representative, Ceci Caballero, has said, it is a lifetime achievement award, and Tim is certainly a worthy recipient. I won't detail all of his activities that are recognized by this award, as Helen did it quite well, but I wanted to highlight a few. In particular, the talks Tim gave to our club and in many other venues about Voyager before his retirement helped show the continuing importance of the mission when it tended to be overshadowed by more recent and glitzier projects – and he also did a great job of detailing the history and showing Voyager's incredible achievements.

Although I'm not sure this was part of WAA's consideration in giving the award, Tim is an incredibly patient and methodical observer, using different techniques to increase contrast and tease out detail in dim objects in the eyepiece. An evening observing with him was definitely educational for one with my more slapdash approach.

I have a particularly fond memory of him from an evening at RTMC when I was helping to run a telescope in the observatory there. Tim came through shortly before we were planning to close, wanting to see if he could pick out Pluto. Unfortunately, he couldn't match the charts he had with him with what was in the eyepiece, though he and another person who came through for some viewing and became interested in the project, kept trying. More than half an hour after we closed the observatory, I came across Tim and the other Pluto-seeker at a campsite, with more charts and a different telescope, working out which of the tiny dots in the eyepiece was Pluto. That was educational on many levels, including the effective use of star charts (I'm largely of the go to era of amateur astronomy) and the importance of perseverance when faced with a difficult viewing challenge.

I understand arrangements are still being worked out for presenting him with the award, as the venues where the awards were presented in the past aren't available. We'll let you know when we learn what the arrangements are. In the meantime – Congratulations, Tim!

Covid Update:

As we've all seen over the last two years, things keep changing in the Covid response arena, so it's been hard to make firm plans. However, we seem to be past the Omicron surge in infections, though there are some signs that there may be another variant causing an increase in cases in Europe and the East Coast. Overall, there seems to be cautious optimism that maybe we can resume some of our past activities without too much risk.

With that in mind and in hopes that the Covid situation will remain reasonably stable, at the March Board meeting we decided to set a formal date for the return of designated Anza star parties. The first is set on the Saturday of Memorial Day weekend, May 28, when in times past many of us might have expected to be out at the RTMC Astronomy Expo. Sadly, RTMC is gone (not due to Covid), though not forgotten. Aside from associations of that sort, that should be a very nice dark-sky weekend this year (New Moon is on Memorial Day itself), fitting for a renewed season of star parties. However, there could be changes if we wind up with another surge.

Whether there are designated star parties or not, the Anza site does remain available to members. Please bear in mind that the club doesn't have the resources or personnel to sanitize the premises, so everyone who goes out there goes out at their own risk and must be responsible for their own safety. The club is also not able to police the site for either the infection status or vaccination history of people at the site. Please be cautious if you go out there and take whatever measures you feel are needed for your safety and that of your party if anyone is out there with you.

As many of you may recall, we used to have annual Starbecue potluck parties on the evening of the July star party out at Anza, before observing activities began. If all goes well, that should be on again this year, at the star party on July 30. After two years without a Starbecue, we're hoping for a good turnout this year!

Unfortunately, I don't yet know the status on the Orange County star parties. When they can start again, we'll get the dates on the website calendar and send out notice through the usual channels.

We also still don't know when we'll be able to get access to our usual meeting room at Chapman University for our general meetings. Not surprisingly, outside groups like ours are a fairly low priority for them, and they're being cautious about how they're resuming in-person activities on campus. They're pretty aggressive about testing, quarantining those who contract Covid, and tracing contacts for anyone who tests positive, per the Covid section of their website (which is regularly updated). They're justifiably proud of the fact that they've been able to keep their case count low, and that their overall vaccination rate is 94.41%.

Since we're in March as I write this, a significant way through the spring term, it seems unlikely we'll get access in this school year. We'll give notice through all the usual channels when the situation changes.

Happy April and clear skies and good viewing to you all!

Anza site looking downhill from Jupiter ridge showing recent snow. Photo by Ray Stann

AstroSpace Update

April 2022

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

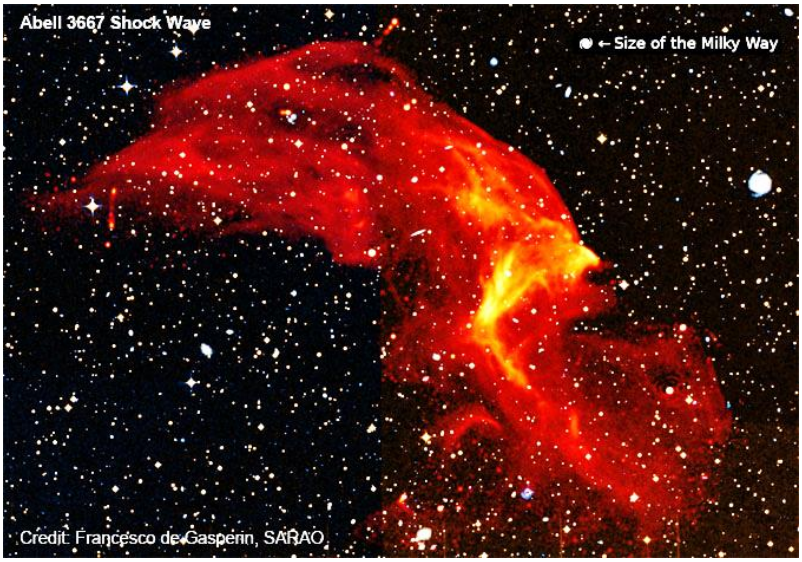
FRB Source Located – Fast radio bursts (FRBs) are powerful flashes of radio energy that last only milliseconds, and their cause or causes are not understood. Some of them repeat from the same source, but many do not. Scientists linked up 12 widely spread radiotelescope antennas to obtain extreme location precision on one of the FRB repeaters and found that it is emitting from a globular star cluster orbiting about the nearby galaxy M81, only 12 million light-years distant. There are hints that FRBs are produced by magnetars, extremely magnetic neutron stars, which are almost always found in clusters of young massive stars. So, a globular cluster of old less massive stars was quite a surprise. If the source is a magnetar, it must have been created by the rare process of an old white dwarf star accreting mass and collapsing to a neutron star, rather than the common process of collapse of a young massive star. Another surprise from the new observations is that the radio bursts flicker in brightness extremely fast (tiny fractions of a microsecond), so by the limitations of the speed of light, the flickers must be produced in a region smaller than a sports field.

Pulsar Particle Beam – A pulsar designated PSR J2030+4415 has been found to emit a beam of matter and antimatter particles that is about 7 light-years long, this from an object only about 10 miles across. The pulsar, which is a spinning neutron star with a strong magnetic field, is about 1600 light-years away, and is spinning about 3 times per second. Astronomers have long been puzzled why they have been detecting substantial numbers of positrons hitting Earth, for example by the AMS instrument on the International Space Station, and objects such as this may help explain that positron count. The positron is the antimatter version of the electron. Astronomers believe that the magnetic field in the stellar wind of this pulsar has connected with interstellar magnetic field, and this is allowing electrons and positrons produced by the pulsar to leak out into the galaxy instead of being contained near the pulsar, as normally happens. The beam of particles is this leakage, and it was imaged in X-rays that were given off by the fast-moving particles.

Exoplanet Atmosphere – For the first time the atmosphere on the night side of an exoplanet has been extensively studied. The observations were made with a spectrograph on the Hubble Space Telescope, spanning 2 revolutions of the planet. The planet, designated WASP-121b, is tidally locked to its star, that is, keeps one side permanently facing the star. It is a gas giant and orbits so close to its star that it is extremely hot, about 4000°F - 5800°F on the day side, and 2200°F - 2800°F on the night side. Curiously, the temperature rises with rising altitude on the day side, but the temperature drops with rising altitude on the night side. The planet's orbital period, or year, is only 30 hours long. The study was able to track water in the atmosphere through a cycle that differs vastly from the Earth's water cycle. 121b's water vapor on the day side is broken into hydrogen and oxygen by the high temperature, and those gases are transported by high winds to the night side, where they recombine to form water vapor, which is then transported back to the day side. Evidence was observed for winds reaching 11,000 mph. Iron, titanium, and corundum likely go through a cycle of liquid and vapor between day and night sides, so it might rain molten iron or liquid rubies (a form of corundum) on the night side. However, titanium and aluminum were not detected spectrographically. This probably means that those two elements occur too deep in the atmosphere to be detected by these observations. The astronomers in this study plan to use the James Webb Space Telescope to repeat these observations, but with much greater spectrographic sensitivity to gases in the atmosphere.

Misaligned Black Hole – The binary star system known as MAXI J1820+070 consists of a black hole and an ordinary star orbiting. A new study of the system found that the axis of rotation of the black hole is misaligned with the axis of the binary orbit by more than 40°. Many theories of black hole formation and binary star evolution have these axes aligned, so the misalignment was unexpected.

Giant Shock Waves – When clusters of galaxies collide, they form giant shock waves. Using the MeerKAT radiotelescope array in South Africa, a team of astronomers made the most detailed image of the apparently largest pair of such shock waves, which lie in the merged cluster of galaxies known as Abell 3667. The shocks were found to be more complex than previously thought. They contain filaments that follow magnetic field lines. Electrons are accelerated to near-light speed. The shocks are moving through the cluster at more than 900 miles per second. The main shock is 6.5 million light-years long.

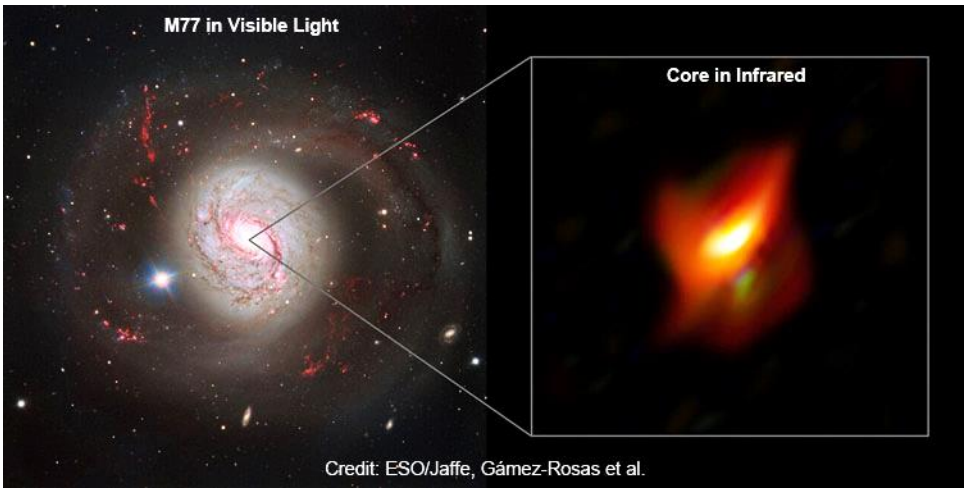


New Radio Image – A team of astronomers created a detailed radio image of more than a quarter of the northern sky, using the LOFAR radiotelescope array, which is scattered across Europe. The image contains about a million objects never pictured before by any telescope, and nearly 4 million objects not seen before in radio wavelengths. A large number of the objects in the image are very distant galaxies. A small number are flaring stars in our own galaxy.

Galaxy Collision – The GAIA space telescope is measuring with extreme precision the 3-dimensional positions, motions and other properties of more than a billion stars. A team of astronomers searched the latest release of GAIA data to find groups of stars with similar properties and motions along with their globular clusters or other satellites that represent the result of small galaxies that have collided with our Milky Way and been absorbed. Five known galaxy mergers from collision were found, but also a new one emerged. The team is calling this merged galaxy Pontus, a mythological child of Gaia. The Pontus collision is estimated to have occurred 8-10 billion years ago.

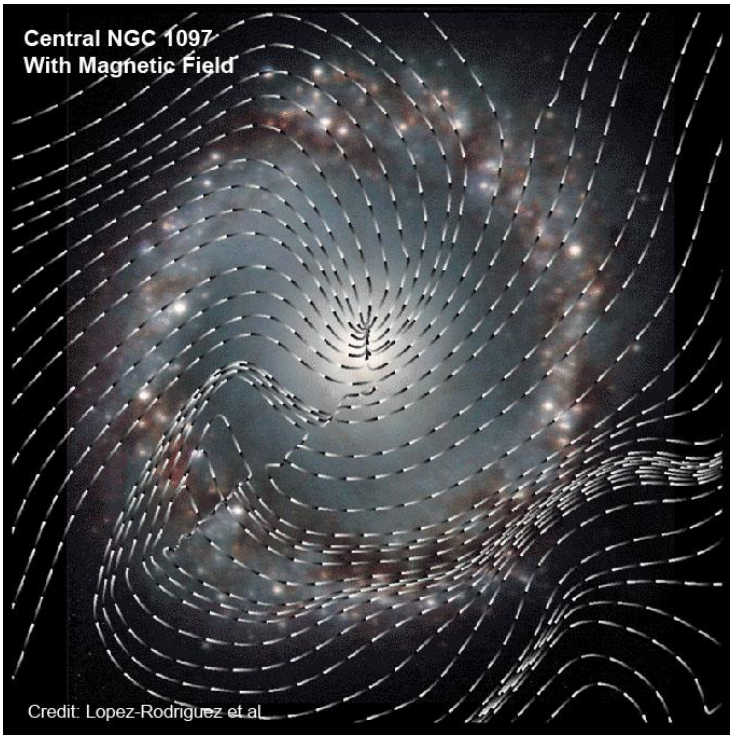
Galaxy Center Strands – Using MeerKAT, scientists created a mosaic radio image of the Milky Way's center with the greatest detail yet seen. It showed almost 1000 strands covering an area about 150 light-years across. About 100 such strands have been known for over 40 years, but the new higher resolution image showed far more. The strands are believed to be cosmic ray electrons moving along magnetic lines at near the speed of light. Properties of the strands, such as magnetism and distribution of lengths, will be forthcoming in another paper based on this mosaic.

AGN Structure Confirmed – Astronomers believe that all varieties of active galactic nuclei (AGNs) are really the same, but appear different depending on the viewing angle, which can obscure parts behind dust, and on the amount of material falling into the central black hole. The parts of the standard model of an AGN are, from the center outward, supermassive black hole, accretion disk, ring of hot gas, fast-moving gas region, dust ring, slower-moving gas. To confirm this model, astronomers observed with infrared interferometry the AGN in galaxy M77, which is thought to have its inner parts obscured by the dust ring. Interferometry obtains high resolution, while infrared penetrates dust. The 4 Very Large Telescopes in Chile were combined for the interferometry. Data from two large radiotelescope arrays also were used to penetrate the dust. The study confirmed what was expected to be hidden by the dust. The astronomers in this study plan to use the same techniques to confirm the structure of other AGNs.



Magnetic Lines Imaged – Astronomers imaged the magnetic lines that gas is following flowing toward a supermassive black hole at the center of a galaxy. Images in infrared and radio light were used. Polarized observations show the magnetic fields. Those magnetic fields tend to align dust grains, and light encountering the grains becomes polarized. The observations were of barred spiral galaxy NGC 1097, located about 45 million light-years away in Fornax.

Large Molecule Found – Using the ALMA radiotelescope array in Chile, astronomers have for the first time found dimethyl ether in a planet-forming disk. At nine constituent atoms, it is the largest molecule yet found in such a disk. This disk surrounds the young star known as IRS 48, which is located 444 light-years away in Ophiuchus. This disk is unusual in that it contains a "dust-trap" where millimeter-sized grains seem to collect and grow. Heating from the young star probably freed the dimethyl ether from ice coatings on the dust. Dimethyl ether is considered a building block to form larger organic molecules.



Binary Star Disks – A team of scientists has observed disks of gas and dust around a very young binary star. There is a disk about each component star and a third around the pair as a whole. All the disks could form planets. The disk about the pair has a spiral structure and is dropping material into the individual disks. The binary is known as SVS 13 and is located about 980 light-years away in the Perseus molecular cloud. Observations from two radiotelescope arrays were used, including decades of archived data. Almost 30 different molecules were identified in the system. The two stars are so close that they appear as one in optical observations.

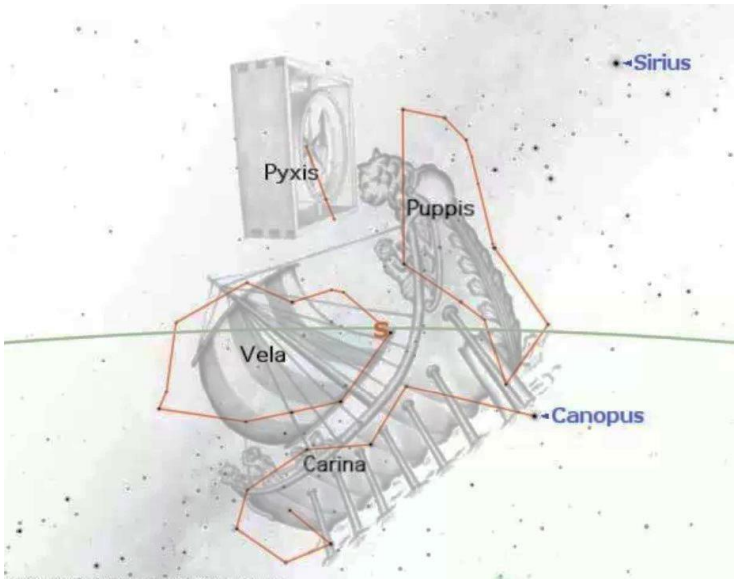
Lunar Glass Globules – The Chinese Yutu-2 lunar rover discovered a couple of centimeter-plus-sized translucent glass globules lying on the lunar surface of the Moon's far side, where the rover continues to explore. Another possible such pair was seen poorly at a distance. Smaller or opaque glass globules have been found on the Moon previously, but the new ones are unique. They are believed to have formed from molten iron-poor surface material splashed out of a long-ago meteor impact on the Moon.

Lunar Sample Being Opened – NASA has kept untouched some of the lunar rocks and soil retrieved by the Apollo astronauts more than 50 years ago, assuming that progress in instrumentation would allow more science on these rocks when they are finally opened. One of the last of these preserved samples is being opened in hopes of learning more about what to expect when the Artemis missions bring more samples back from the Moon over the next few years. The sample is known as ANGSA 73001, was brought back by Apollo 17, was collected by driving a tube into the lunar surface. It has been tightly sealed and temperature controlled since. It should contain volatiles, that is, material that will evaporate when warmed. The volatiles will be captured and analyzed when the sample is opened.

Another Look

Dave Phelps, April 2022

New Moon April 1 and April 30
Pink Moon
Full Moon April 16, Paschal Moon 1st full moon of Spring
Passover begins April 15 and ends April 23, Easter Sunday April 17



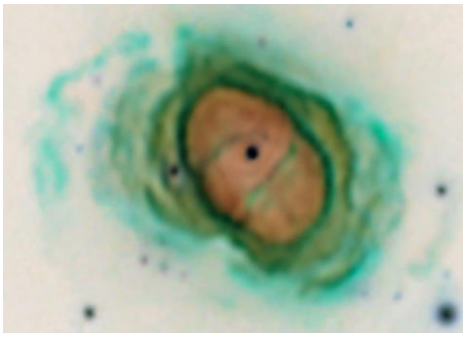
I have always been kind of fascinated by Argo Navis. The idea of a huge constellation in the south constructed from the mythology of Jason and the Argonauts is very compelling and a little hard to explain if not for the precession of the equinoxes. For some reason the modern astronomers felt it too large and by the mid 1700's began to cut it up into manageable sizes and in 1930 was firmed up by the IAU.

Puppus, the poop deck or stern, has three Messiers, M46, M47 and M93 and close at hand to M47 is another open cluster NGC 2423. Superimposed on M46 is NGC 2438 a small planetary nebula of 11th magnitude.

Not much to see in Pyxis. When Argo Navis was broken up into Carina, Vela and Puppis, Pyxis was not included. Pyxis is a modern add on. The Greeks did not have compasses though some thought it should be included as part of the mast. That leaves Pyxis as an outlier. We can't see Carina from 32 degrees north, still it is fun to try to piece together the individual parts.

Vela is surprising. It has named stars, an awesome 9th magnitude planetary nebula, several meteor showers, and a huge supernova remnant. The Vela SNR is 12th magnitude and spread over several degrees. It includes a pulsar and a few designated GUM objects. Look for it between Gamma γ and Psi ψ Velum. Vela has mostly fainter objects except for IC 2391 a loose, brighter open cluster of a few blue stars. One globular cluster I've never seen is NGC 3201. Burham doesn't say much about it except that it is large, loose and 8th magnitude.

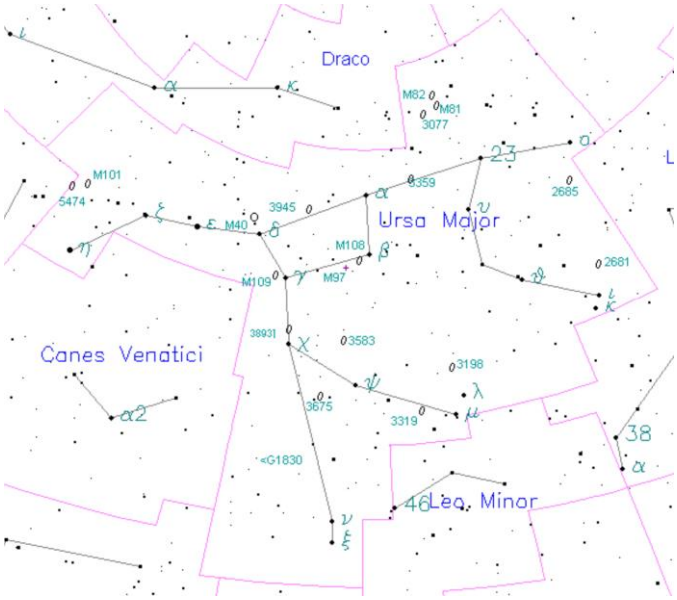
I never spent much time in Vela, shame on me. What I remember is NGC 3132 between Psi ψ and 3rd magnitude Rho ρ. NGC 3132 is called the Eight-Burst Nebula. One of the more interesting things about NGC 3132 is that it has two central stars, one being a pulsar. Check out the image you see here in **APOD.** It's a beaut.

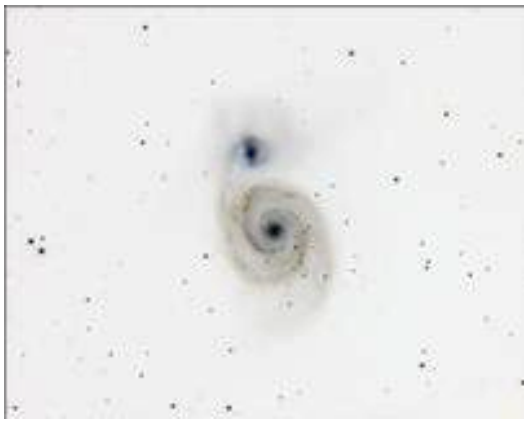


NGC3132 - APOD June 7, 2015

Maybe it's time for some of our local astrophotographers to step up to the plate. I used to be able to bug John Sanford or Msgr. Ron Royer to work on new stuff, of course they routinely ignored me also.

Years ago, a supernova searcher and Uniting Church minister from Australia who lived in the Blue Mountains visited Southern California and asked to spend a night at Ford Observatory on Mt. Peltier near Wrightwood. He wanted to come up because he had never searched Ursa Major for supernovas. At the time I was pretty familiar with the bowl of the Dipper so I was asked to be his guide for the evening. I would point the 18 inch at a faint galaxy and he would take a few seconds to look then ask to go on to the next one. As you know, the vicinity of the bowl and the bowl itself is packed with galaxies, a few Messiers and even an Abell. Set up your setting circles, align your alt-azimuth, or just point your big Dob to Beta β Ursa Majoris, also known as Merak the hip of the bear and star hop from βeta to M108 and then to M97 the Owl. Then jump on over to Mizar and Alcor, the Horse and the Rider. stopping on the way to check out M109 right next to Gamma γ named Phecda or maybe Phad, the thigh. M109 is a nice one with a bar. I mention it because the bar is tough to see, a challenge for you if so inclined. The spectroscopes tell us that Mizar is a double and so is Alcor; and that Mizar is actually a double-double giving us a six-star system.





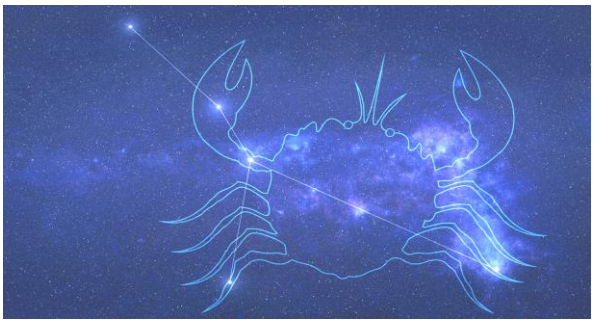
M51 and NGC5195 courtesy of Curtis Coulet of Temecula Valley Astronomers

Continuing down the arm of the dipper the last star is Eta η, is named Alkaid and is the finder star for M51, the Whirlpool. Big bright and beautiful, and with a recent supernova. Other stars that make up the Bear are Megrez(δ), the root of the tail, connecting the tail to the bowl, Phecda(γ) next to Merak(β) the hip of the bear and then to Dubhe(α) the Back of the Great Bear. A bowl and a half further on is Muscada, the Snout. Alkaid, Eta(η), the end of the handle is translated by Ben Mayer in "Starwatch" as the Leader of Mourning Daughters. Looking over some of the Chinese and Arabian lore about Ursa Major, it seems that more than one culture thought of the constellation as a group of mourners, or maybe a funeral procession.

I had a pal whose prodigious memory and knowledge made him a great observing buddy. He was so locked in that he could point his telescope to M81 and M82 and have them right in the middle of his field. I thought I'd check APOD to see if they had chosen either of them recently and found five images in the last two years, a couple with comets attached. As great as those images are, I still remember trying to pick out detail in M82, trace the arms in M81 and search for the field for NGC's 3077 and 2976, other galaxies in the nearby. NGC 3077 is worth a second look. It's another disrupted galaxy and at 10th magnitude should be in the reach of your backyard telescope.

There are over 100 galaxies magnitude 12 and 13 or better around the constellation of Ursa Major; over 100 in or around the bowl and that many fainter but still findable. Abell 1377 is right there in the bowl but its galaxies are less than 13th mag. It's a happy hunting ground for supernova searchers and maybe you'll find yours.

I sometimes marvel at all the time I spent on cold winter nights with a telescope and frozen cup of coffee as my companion. Whether Idyllwild, Ford, Mt. Pinos, Anza, Bell Mountain or Joshua Tree, I would zip up my bear suit, pull on gloves and balaclava and set up the old Dob or maybe the orange Cat. The stars cracked overhead, an occasional meteor would zip across, maybe even a Bolide, and I would spend hours trying to learn everything about a particular constellation. It was especially wonderful when Mercury or Venus would rise before the morning sun.



I like Cancer, it's my horoscope sign and I think M44 is one of my favorites and M67 is a nice open cluster. M44, called Praesepe or Beehive, is visible to the eye and can be used as a gauge for visibility. It is beautiful in binoculars. Go ahead and give it a try. Cancer has some interesting star names that aren't anywhere near the Greek mythology of Cancer being the crab that attacked Hercules while he was fighting Hydra. My favorite is the one that calls the Praesepe the Manger and Gamma γ– Asellus Borealis and Delta δ– Asellus Australis, the Northern and Southern Donkeys eating hay from the Manger. Then Beta β- Al Tarf is the Edge and Acubens (α – Alpha) is the claw. I seem to remember reading that the donkeys and the manger originated as a Christian Christmas story.

While we are in the area if we go to the area around the head of Hydra we will pick up M48 a bright Open Cluster. **(Thank you astropixel.com).** We will leave the tail and body of Hydra for later, though, if you want to slip down the tail of Hydra to M83, the Southern Pinwheel, a 7th magnitude and face-on galaxy you will get a spectacular treat.

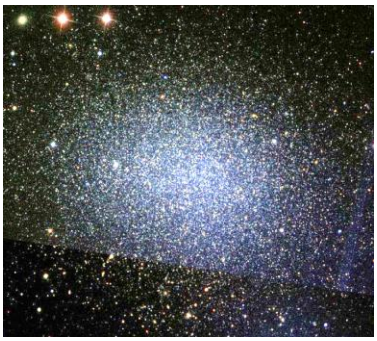
I used to spend a little time on Abell clusters. They are too faint to be of much interest visually, as a rule, though usually anchored by a larger brighter galaxy. The interest actually comes from the imagination. Once you've picked up that field you can imagine a giant cluster of galaxies gravitationally connected, all moving in one direction at one speed and all at the same general distance from us. The two in Lynx are good examples this month. The first is right off 21 Lyncis, the third star from the top of the constellation designated. It is named Abell 559 and is anchored by NGC 2329, a 13th magnitude lenticular galaxy that they now tell me is a "cluster dominant elliptical galaxy". It'll be tough to see and pretty bland to photograph, still it's worth a try. Abell 779 should be a lot easier. It is right off Alpha α Lyncis, the brightest star and the furthest southern star in Lynx. Abell 779 is anchored by NGC 2832 which is right next to NGC 2831, both close to 9th magnitude. I'm sorry but I don't remember anything about these clusters. Alas, my notes and my books on Abell objects didn't make it here from North Carolina.

One last note in Lynx is NGC 2419. You will find it closer to Castor than to any of Lynx's dim stars and while they tell me its 9th magnitude, I think you will find it closer to 11th mag. So if it is 9 you should be able to see a fuzzy star with your 4" to 6". It will take a little more to resolve it into a globular. So, why the interest? NGC 2419 was once called the "Intergalactic Wanderer" because it was thought not to be in orbit around our own Milky Way. Now they tell us it is and has an orbit maybe as long as 3 billion years and is at least as far from the center of the galaxy as is the Magellanic Clouds. Another rarity for your life list.

Camelopardalis and Lynx as depicted in Urania's Mirror, a set of constellation cards published in London c.1825.
Credit: Sidney Hall/Library of Congress. I cut Leo Minor from Pinterest.

There is no real mythology connected to Camelopardalis since it is considered a "modern" constellation. Due to the faintness of the stars associated with it, the early Greeks considered this area of the sky to be empty – or a desert. But based on its Latin name, it could be considered to be an animal connected to the twelve labors of Hercules having the neck of a camel and the spots of a panther. This is a rather bleak region of the sky. Ptolemy left the region bare when he named his 48 original constellations in his Almagest. It has a sprinkling of fainter stars and no discernible patterns. It wasn't until the 16th century that Hevelius plotted Camelopardalis as a constellation with Leo Minor and Lynx in his atlas *Firmamentum xx Sobiescianum* and his *Catalogus Stellarum Fixarum*. There has been some fiddling around in the area since by astronomers, cartographers and atlas and catalog makers but the names and locations were firmed up by the IAU in 1930.

One last little bit or wanderlust for this month. I will be looking at Leo in May when the Sickle will be directly overhead at 2100 hrs May 1. Before then, though, move your telescope over to Regulus. Leo 1 or the Regulus Dwarf or even UGC 5470 is like all Dwarf Galaxies very diffuse and with low surface brightness. It's listed at 9.8 magnitude in one reference, but it is spread out which makes it difficult to see. Maybe a light pollution or high contrast filter will help. One Wikipedia reference said it was not seen visually until 1990 but I searched for it and found it in the late 70's or early 80's at least twice. Check your charts, it is only 12 minutes from Regulus. I have no doubt you will find it also.
Thank you to Anne's Astronomy News for this image



Dwarf galaxy Leo I

Dark Skies

Astrophysics SIG Activity Report

By Mark Price (mark@ocastronomers.org)

Astrophysics Special Interest Group held its March 18, 2022 meeting at the Heritage Museum of Orange County with 15 attendees. One of our ASIG members, John Wsol, presented "A Proposed Resolution of the Dark Energy Enigma " that details his own original theoretical work in Cosmological Relativity and its underlying physics. We also continued our video presentations in the areas of science and engineering of space exploration and the astrophysics research supported by Hubble Space Telescope observations. Please contact us for further information on AISG or to suggest activities that would interest you.

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.

For Sale	contact	Ron Choi	rongrace2@cox.net	
• Orion StarShoot AutoGuider			further reduced price	$ 200

For Sale	contact	Rick Hull	hull3hull3@yahoo.com	949-636-2920 cell	
• SBIG ST-i Mono; Guide/Planetary camera with mechanical shutter				reduced price	$280
Price includes shipping and PP fees					

For Sale contact Rick Hull hull3hull3@yahoo.com 949-636-2920 cell

- QSI 6120C OSC CCD camera with Mechanical Shutter reduced price **$ 1800** +sh

This unit was built before the ATIK acquisition, so you know it was built to QSI quality standards.
Camera body is the "-s" version with mechanical shutter. The front end can be replaced to have an integrated OAG and/or filter wheel. Unlike more economical cameras using only desiccant, QSI 6xx series have a sealed chamber, purged and filled with a noble gas.

Built around the Sony ICX834 with EXview HAD CCD II technology, this 12M sensor is perhaps the best CCD by Sony before ending CCD production - high in sensitivity, low in noise. Pixels are 3.1um for high resolution and image array is 8.8x13.2mm in size. The 3.1um pixels are nearly ideal for those using focal lengths of 600 - 1200mm desiring to achieve maximum resolution, as seeing permits. I believe the Bayer mask is superior to most found on CMOS sensors which are designed for consumer cameras, providing less overlap of the color channel band-passes.

I can provide a few images taken at 770mm focal length out at Anza. Contact me by email.

New, this camera is now $4200, and the ATIK 4120C which is a basic lower-end cousin, is $3K.
On CN I am asking $1900, any OCA member may purchase it for **$1800** plus shipping.
Please feel free to contact me with any questions.

For Sale contact Jason Oxman jason@oxmans.com 714-519-1896

- Space Shuttle "Columbia" mock up $ 500

10' long X 6'6" tall X 5' wide
Needs some TLC
Needs some plywood repair
Needs a new coat of paint

This Space shuttle stood outside of Oxman's Surplus in Santa Fe Springs marking the store entrance for over 20 years. It was originally from the BOEING AIRCRAFT CO. in Long Beach, CA. Oxman's Surplus is no longer in business and the Shuttle needs a good home.

For Sale contact Val Akins akins7821@gmail.com

- Fujinon binoculars, the FMT-SX; 7 X50 mm Water-proofed, purged of air, nitrogen filled. $250

Top quality; fully multicoated, like new with leather case. Among the finest binoculars made.

- Vixen - flip mirror diagonal 31.7 mm (1 and 1/4 inch eyepieces) attached to 50.8 mm $ 50

visual back - accepts 31.7 mm eyepieces and threaded to fit T-ring.

SIRIUS ASTRONOMER
www.ocastronomers.org
The Newsletter of the Orange County Astronomers

Nonprofit Organization
U.S. Postage
PAID
Santa Ana, CA
Permit No. 1468

NEWSLETTER OF THE
ORANGE COUNTY ASTRONOMERS
P.O. BOX 1762
COSTA MESA, CA 92628

DATED MATERIAL
DELIVER PROMPTLY

RETURN SERVICE REQUESTED

CONTACT LIST

WEBSITE: https://ocastronomers.org Phone 949-266-9777 Starline 24-Hr. Recording: 714-751-6867 Anza Observatory: 951-763-5152

BOARD OF DIRECTORS

		board@ocastronomers.org
President	Barbara Toy	btoy@cox.net
Vice President	Reza AmirArjomand	reza@ocastronomers.org
Treasurer	Charlie Oostdyk	charlie@ocastronomers.org
Secretary	Alan Smallbone	alan@ocastronomers.org
Trustee	David Searle	dwsearle@gmail.com
Trustee	Cecilia Caballero	ceci@ocastronomers.org
Trustee	Doug Millar	doug@ocastronomers.org
Trustee	Sam Saeed	sam@ocastronomers.org
Trustee	Helen Mahoney	helen@ocastronomers.org
Trustee	Gary Schones	gary378@pacbell.net
Trustee	John Hoot	jhoot@ssccorp.com

COORDINATORS

Anza House Coordinator	Manuel Baeza	manugb33@yahoo.com
Anza Site Maintenance	Don Lynn	dlynn@ieee.org
Beginner's Class	David Pearson	p.davidw@yahoo.com
Orange County Star Parties	Steve Mizera	mizeras@cox.net
Explore the Stars	Bob Nanz	bob@nanzscience.com
Librarian	Karen Schnable	karen@schnabel.net
Membership / Anza Pads	Charlie Oostdyk	charlie@ocastronomers.org
Observatory Custodian / Trainer / Member Liaison	Barbara Toy	btoy@cox.net
Outreach	Cecilia Caballero	outreach@ocastronomers.org
Sirius Astronomer Editor	David Fischer	newsletter@ocastronomers.org
Telescope Adoption Program	John Hoot	scopes@ssccorp.com
WAA Representative	Cecilia Caballero	ceci@ocastronomers.org
Webmaster	Reza AmirArjomand	webmaster@ocastronomers.org

SPECIAL INTEREST GROUPS (SIGs)

AstroImagers SIG	Alan Smallbone	alan@ocastronomers.org
Astrophysics SIG	Mark Price	mark@ocastronomers.org
Dark Sky SIG	Barbara Toy	btoy@cox.net
Youth SIG	Doug Millar	doug@ocastronomers.org