



THE LOS ANGELES ASTRONOMICAL SOCIETY

THE BULLETIN

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This is NGC 3628 which is about 35 million light-years away. It has a tidal tail approximately 300,000 light-years long. A wide dust band blocks the core of the galaxy and the spiral arms are distorted by gravitational effects of two nearby galaxies, M65 and M66. The tidal tail also suggests that NGC 3628 is interacting gravitationally with the other spiral galaxies in the Leo triplet, M 65 and M 66.

I captured this at my club's dark site last night. Everything was working well and the guiding was good so I got 17 ten minute exposures before quitting around 3AM.

Taken with Celestron 9.25 SCT and Nikon D5600 @ISO 800. 17x 600 second exposures

Photo Credit: Spencer SooHoo

April 10, 2021

Upcoming Virtual Club Events

Board Meeting; May 5, 2021

General Meeting; May 10, 2021

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All members are encouraged to contribute articles of interest for publication in The Bulletin.

Please send your articles and images to:

communications@laas.org

New Contact Info For 2021?

If you have recently moved, changed your email address or phone number, please contact our club secretary at

secretary@laas.org.

NSN Webinar Series: NSN Webinar Series: Citizen Science and the Night Sky



Join the NASA Night Sky Network and [SciStarter](#) on **Thursday, April 29 at 6:00 pm Pacific (9:00 pm Eastern)** for a conversation with three citizen science project leaders and **David Eicher**, Editor-in-Chief of [Astronomy Magazine](#).

Celebrate [Citizen Science Month](#) (April 2021) by joining Dave Eicher, Editor-in-Chief of Astronomy Magazine, as he moderates a Q&A with the leaders of the **Aurorasaurus**, **Spiral Graph**, and **Smartphone Astrophotography** citizen science projects. Discover all three SciStarter projects before, during, and after the event at <https://SciStarter.org/AstronomyMag>

Further Information and Additional Viewing Options

The event will also be streaming live on YouTube, but please note that questions asked over the NSN-members-only Zoom Q&A will be prioritized.

Link: <https://youtu.be/ikgfyN9JCyE>

The recording will be uploaded both to the webinar's resource page and to the [NSN YouTube](#) page for folks that are unable to attend this evening's session.

NSN Webinar Series

Find our upcoming webinar schedule and links to past, present, and future webinars on our webinar news page: https://nightsky.jpl.nasa.gov/news-display.cfm?News_ID=707

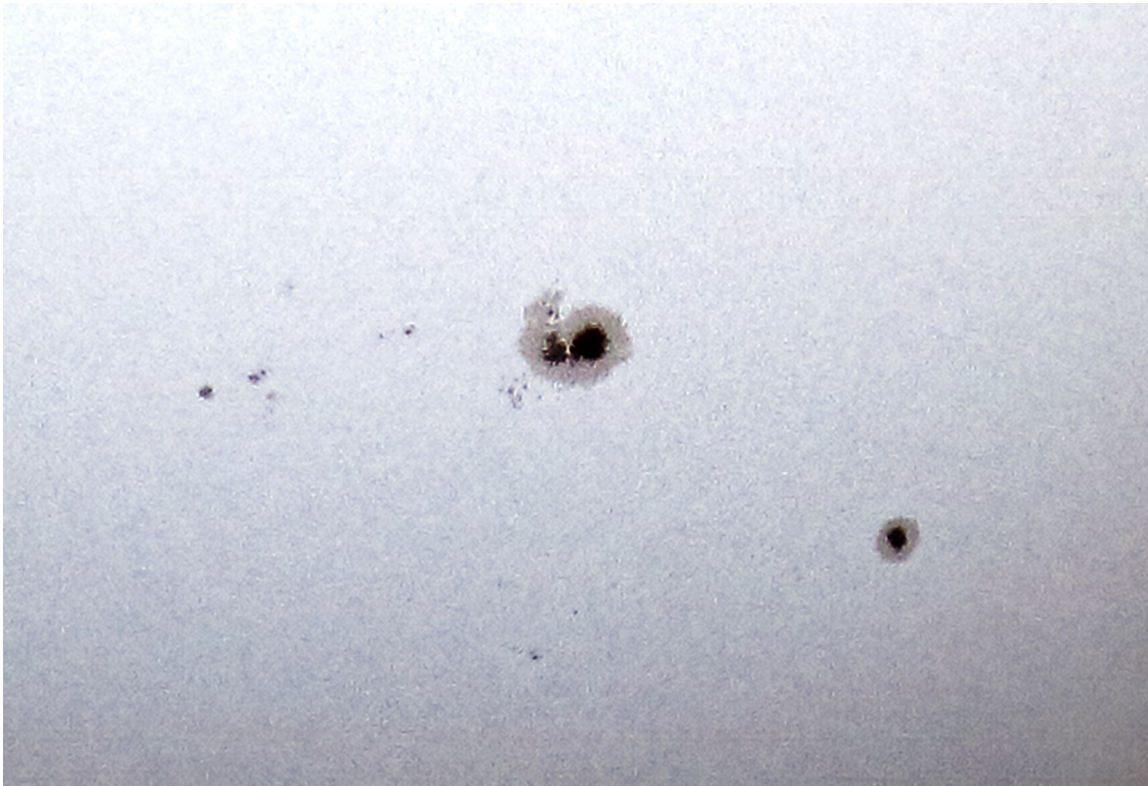
Know Nukes!

Understanding the Awesome Nature of Our Closest Star

By Ray Blumhorst

Like an aged amateur astronomer rising from a deep slumber to meet the dawn, our Sun, our star, has recently stirred from its solar minimum with renewed surface layer activity in its photosphere and chromosphere. A few sunspots have slowly begun to show on the Sun's photosphere with their magnetic lines believed to emanate from deeper in the Sun's convection zone. Even farther down in the 27,000,000°F core, a power challenging the depths of our comprehension is at work. The strong nuclear force that fuses hydrogen is that power and it's the Genesis of the intricately complex magnetic weather that our Sun exhibits in grandiose displays.

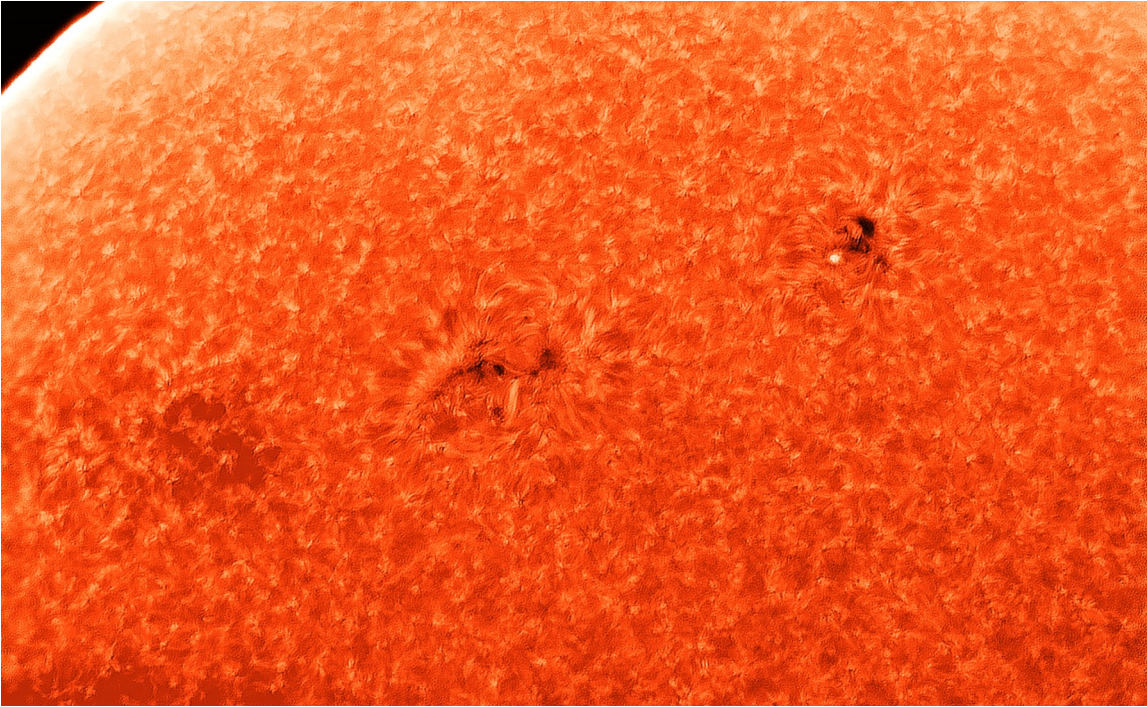
White light filters reveal photosphere sunspot activity to amateur solar astronomers who've eagerly awaited their return, but more impatient solar observers see more revealing details of the emerging sunspot cycle by using H-alpha solar filters on the chromosphere, which is located just above the photosphere.



Sunspots on the photosphere were taken on 11-30-2020 with a white light solar filter.

"The Sun's surface is frequently pocked with dark spots that we call sunspots," writes Keivan G. Stassun, Ph.D. "These spots are cooler than the surrounding surface because they represent cool regions - typically a few hundred degrees cooler than the rest of the photosphere - so, by virtue of being cooler, they emit less light."

Even when sunspots are absent from the photosphere, or just very small, there's significantly more activity going on in the chromosphere, but that chromosphere activity is a part of the dynamic process that forms photosphere sunspots. That was the case when the image below was taken.



This H-alpha chromosphere filter image, taken on 3-27-2021, shows significant chromosphere activity when only one small sunspot was present on the photosphere.

In addition to sunspots, prominences are another form of elaborate chromosphere activity visible in the H-alpha line of the electromagnetic spectrum of light.



This H-alpha chromosphere filter image of a prominence was taken on 3-16-2021.

“Prominences exist because hot ionized gas clings to the strong magnetic fields of the Sun; consequently the gas traces and outlines and loops where magnetic fields are present,” writes Jamey L. Jenkins. “The fields originate below the photosphere and with sufficient strength extend into the upper layers of the solar atmosphere.”²

With the new 11-year sunspot cycle just beginning, the coming months should offer many more opportunities to witness the incredible activity made by the strongest force to rule over our nature here on Earth, our Sun’s strong nuclear force. Such a terrifyingly beautiful object as our Sun is intimidating to we meager Earthlings who live in awe of its power in its ongoing hydrogen fusion process.

The Sun with its light and heat has marked each and every day of each and every human’s life who has ever lived, yet almost everyone who has ever lived takes our Sun for granted.

Our Sun is the preeminent physical force sustaining all life on earth from the smallest to the greatest. Each dawn brings a reminder to me, to us, to appreciate Earth’s life process and the blinding benevolent orb at the true center of everything in our solar system.

As always, observe all solar observing and imaging precautions when observing, or imaging the Sun.

“The Life and Death of Stars/The Great Courses, 2014, Keivan G. Stassun, Ph.D.

²Observing the Sun A Pocket Field Guide, Springer, 2013, Jamey L. Jenkins

Interested in learning more about the Sun?

Here are some links to some great resources:



SOHO: Solar and Heliospheric Observatory

<https://sohowww.nascom.nasa.gov/>

SDO: Solar Dynamics Observatory

<https://sdo.gsfc.nasa.gov/>

Solar-C EUVST (Next Generation Solar-Observing Satellite)

<https://solar-c.nao.ac.jp/en/>

The Parker Solar Probe

<https://www.nasa.gov/content/goddard/parker-solar-probe/>

An Introduction

By Jeff Gortatowsky



I am a relatively new member of LAAS. Born and raised in Rochester, New York, a kid of the 60's, I have always been fascinated with aerospace and astronomy. Like many my first telescope was a 60mm f/15 that shook more than I did on cold winter nights. But I recall my first view of Saturn from our driveway! After a stint in the Air Force working on F-106s and F-111s, I came back to Rochester and worked for Kodak. I owned a series of SCTs, a few C8s and a Meade 25cm LX200 (the first version). However Rochester has two seasons, the cold snowy season and the humid mosquito season. That plus a drive to become a software engineer hampered or impeded my hobby. So the 90's was mostly lost including missing out on the two great comets.

In 1996 I left Kodak and left Rochester for AOL in Newport Beach. Met my then to be future wife the first night I moved out. I attended RTMC for the first time in 1997, after years and years of reading about it in Sky and Telescope, and I was hooked again. The 'yard scope' did me in. I had to get a telescope. Which I did. A 45cm f/4.5 Dob. And I joined OCA. I never attended a single meeting. All I wanted was a dark sky site I could go to whenever I wished without restrictions and the Anza site afforded that. I am still a member of the OCA. In 2012 I moved to Redondo Beach. The 90 minute drive to Anza became more like a 2.5hr journey depending on traffic. I spent less and less time out at Anza. I have not been there in years.

I have known of the LAAS for quite some time as I was a volunteer at RTMC for many years. I would see the LAAS booth all the time. And many of my astronomy friends have spent a night or two on the 60 inch inch with help from LAAS volunteers. I am on the board of the largest star party in California the Golden State Star Party with, on average, 400 attendees. It is held every year (of course without pandemics) near Adin CA. I also regularly attend the California Star Party at Lake San Antonio held twice a year in Spring and Fall.

Like many of you I have a wide array of equipment I have amassed over the years. From a Sears 80mm f/15, 90mm APO, 18cm and 25cm dobs etc. My dark sky scope is a 56cm f/4.2 UC-22 with amazing optics (not so great engineering). During the pandemic it has seen no use. So I joined LAAS to get access to a dark sky site again. I have attended a few virtual meetings, alas no dark sites yet.

Another hobby the pandemic has put on hold is rocketry. I enjoy all forms of it. Low power and high power. During the pandemic I have taken up learning electronics and coding microcontrollers. I code for a living (Kotlin and Java) but never have done embedded coding. I am currently practicing soldering Surface Mount Devices (SMD). My goal is to create my own Digital Setting Circles using microcontrollers and WiFi. I know it has been done already but I am doing it to learn.

Jeff Gortatowsky, Redondo Beach, CA | Twitter: JeffGortatowsky | Yahoo: indanapt



My New Toy

By Joe Phipps

I recently bought a new device for my telescope and it has proven to be a great investment and upgrade to my night sky observing arsenal.

I was in Borrego Springs last year for the Nightfall event that was cancelled like all group events have been recently when I ran into a problem on my Explore Scientific truss tube Dobsonian.

On the second night in Borrego because of the design of the ES upper cage my telrad decided to remove itself from my telescope, it was only held on in four small corners with sticky tape.

Curtis Byrom LAAS President offered to me an Orion laser pointer with mounting bracket that he had won at one of our banquets and had never tried out. Luckily I had an Orion finder scope mount already attached to my telescope and was able mount the pointer right on it. It was easy to perfectly align the pointer with the telescope because I was able to see the beam of light from the laser in the eyepiece while I adjusted it to point exactly at the star I was using.

With my years of experience using a telrad, it was a natural transition to the laser pointer and turned out to be a great improvement. After choosing an object to observe using my sky chart (Sky Safari). I used the laser and instead of being contorted over into position looking through a glass and bullseye with one eye. I was able to stand straight up and easily position my telescope using the laser more accurately than normal than when I use my telrad

After that experience I decided to purchase one for myself and just used it at Joshua Tree National Park. I was able to find objects quicker and easier and probably looked at more objects than I ever have within the same time period. Because lasers not being allowed at our dark sky night events at SKAS in Lockwood Valley, I made a nice, improved mount for my Telrad but will be using the laser instead anytime there is no astrophotography going on.

It also doubles as a nice handheld pointer when removed from the bracket.

Joe Phipps



Joshua Tree National Park 4/18/21

The Summer Triangle

By John Fisanotti



The photo is a stack of images taken with a Nikon D810A and a Sigma 28mm f/1.4 lens on a tracking mount. The exposures for the individual frames were 4 minutes at f/3.2 and ISO 800. The picture was taken from Olancho, CA.

Photo credit: John Fisanotti

Virgo's Galactic Harvest

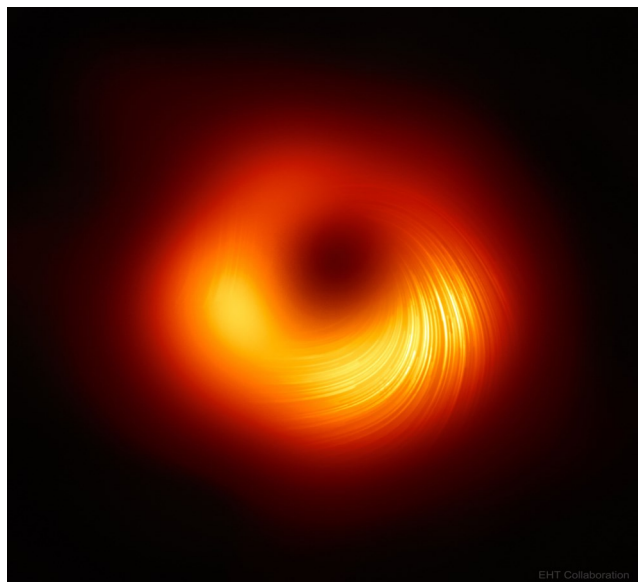
By Dave Prosper

May is a good month for fans of galaxies, since the constellation Virgo is up after sunset and for most of the night, following Leo across the night sky. Featured in some ancient societies as a goddess of agriculture and fertility, Virgo offers a bounty of galaxies as its celestial harvest for curious stargazers and professional astronomers alike.

Virgo is the second-largest constellation and largest in the Zodiac, and easily spotted once you know how to spot Spica, its brightest star. How can you find it? Look to the North and start with the Big Dipper! Follow the general curve of the Dipper's handle away from its "ladle" and towards the bright orange-red star Arcturus, in Boötes – and from there continue straight until you meet the next bright star, Spica! This particular star-hopping trick is summed up by the famous phrase, "arc to Arcturus, and spike to Spica."

This large constellation is home to the Virgo Cluster, a massive group of galaxies. While the individual stars in Virgo are a part of our own galaxy, known as the Milky Way, the Virgo Cluster's members exist far beyond our own galaxy's borders. Teeming with around 2,000 known members, this massive group of galaxies are all gravitationally bound to each other, and are themselves members of the even larger Virgo Supercluster of galaxies, a sort of "super-group" made up of groups of galaxies. Our own Milky Way is a member of the "Local Group" of galaxies, which in turn is *also* a member of the Virgo Supercluster! In a sense, when we gaze upon the galaxies of the Virgo Cluster, we are looking at some of our most distant cosmic neighbors. At an average distance of over 65 million light years away, the light from these galaxies first started towards our planet when the dinosaurs were enjoying their last moments as Earth's dominant land animals! Dark clear skies and a telescope with a mirror of six inches or more will reveal many of the cluster's brightest and largest members, and it lends itself well to stunning astrophotos.

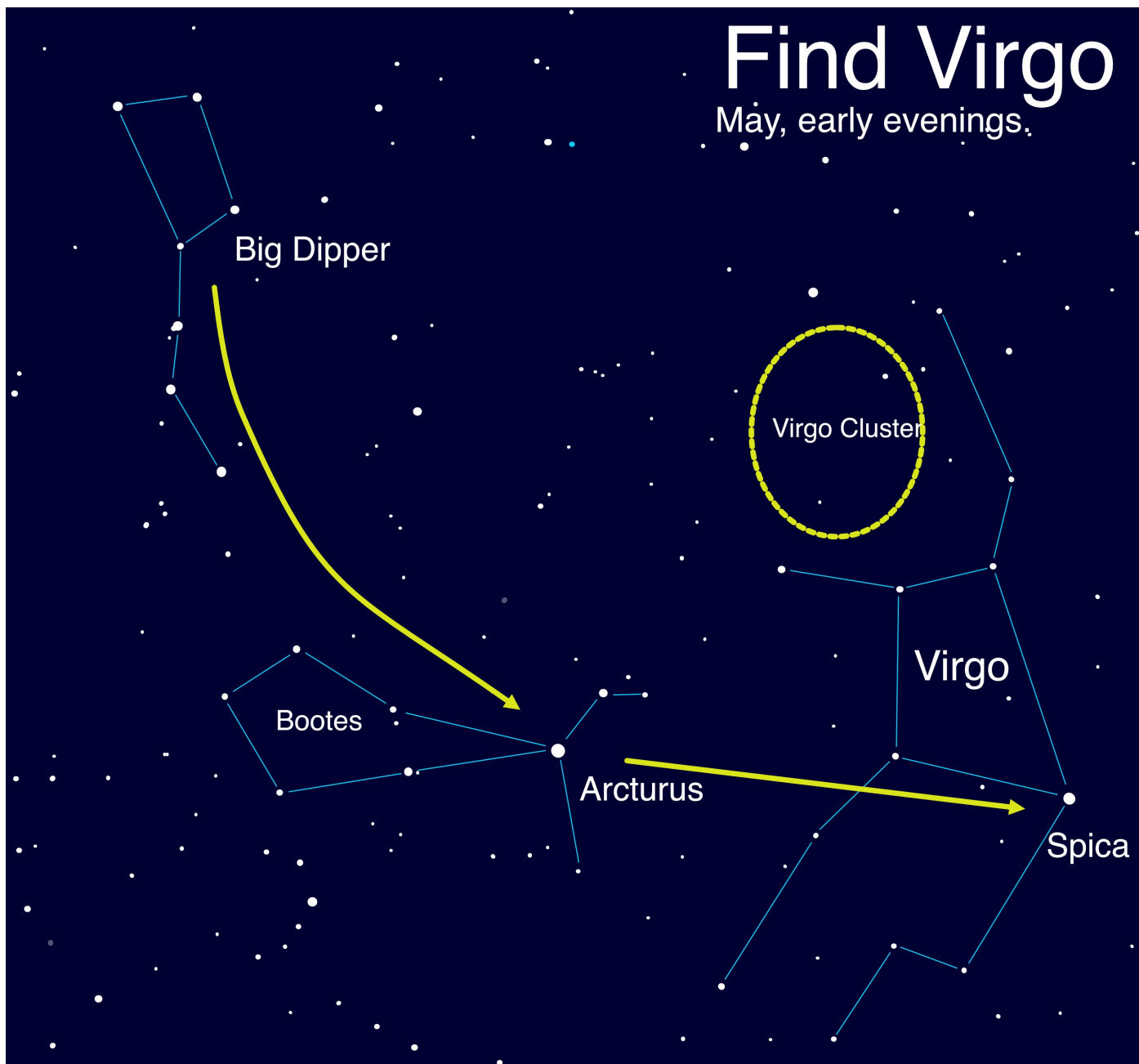
Virgo is naturally host to numerous studies of galaxies and cosmological research, which have revealed much about the structure of our universe and the evolution of stars and galaxies. The "Universe of Galaxies" activity can help you visualize the scale of the universe, starting with our home in the Milky Way Galaxy before heading out to the Local Group, Virgo Cluster and well beyond! You can find it at bit.ly/universeofgalaxies. You can further explore the science of galaxies across the Universe, along with the latest discoveries and mission news, at nasa.gov.



The first image of a black hole's event horizon was taken in the center of one of the most prominent galaxies in Virgo, M87! This follow up image, created by further study of the EHT data, reveals polarization in the radiation around the black hole. Mapping the polarization unveils new insights into how matter flows around and into the black hole - and even hints at how some matter escapes!

More details: apod.nasa.gov/apod/ap210331.html

Credit: Event Horizon Telescope Collaboration



Find Virgo by “arc-ing to Arcturus, then spiking on to Spica.” Please note that in this illustration, the location of the Virgo Cluster is approximate - the borders are not exact.



This article is distributed by the NASA Night Sky Network, a coalition of hundreds of astronomy clubs across the US dedicated to astronomy outreach. Visit nightsky.jpl.nasa.gov to find local clubs, events, stargazing info and more.

Monthly Star Report

By Dave Nakamoto

This is what's happening in the sky in May. I'll discuss the planets in the order they appear in the sky, starting in the early evening.

Mercury appears in the west in the early evening. On the 1st, the sun sets at 7:37 p.m., PDT, while Mercury sets at 8:49 p.m., PDT. Venus sets slightly later. Mercury appears as a faint star above Venus. It might require binoculars to see Mercury. Every night after the 1st, Mercury moves east of Venus. On the 17th, Mercury reaches greatest eastern elongation, when it is farthest to the east of the sun. On that date, the sun sets at 7:50 p.m., PDT, while Mercury sets at 9:39 p.m., PDT. From the 17th onwards, Mercury then moves west and on the 28th, it passes about half a degree to the left of Venus. Never observe Mercury when the sun is in the sky, for the danger to the eyes is great.

Venus is also in the evening sky. It remains there for the next several months. On the 1st, the sun sets at 7:37 p.m., PDT, and Venus sets at 8:22 p.m., PDT. On the 31st, the sun sets at 7:59 p.m., PDT, and Venus sets at 9:21 p.m., PDT. Venus presents a wide gibbous phase and is small. Never observe Venus when the sun is in the sky, for the danger to the eyes is great.

Mars continues moving west to east through the constellations of the Zodiac. The sky as a whole moves slightly to the west each night. These two motions partially cancel one another so Mars appears to move slowly to the west at the same time each night. Mars starts the month after sunset about halfway up from the western horizon. It is a very small disk, about 4 arcseconds wide, too small to see anything in amateur telescopes, and so the time to observe Mars is practically over until the second half of 2022.

All the remaining bright planets rise in the east in the morning.

Saturn rises in the east about one o'clock in the morning in the southeast. A small scope should show the rings with enough magnification, and perhaps the largest and brightest of Saturn's moons, Titan, which will show up as a faint star close to Saturn.

Jupiter rises about two o'clock in the morning in the east. A small telescope will show the two cloud belts of Jupiter, and its four brightest moons will show up as stars close to Jupiter and in a rough line. As they move around Jupiter, they pass in front of and behind it. When they pass in front, the moons and their shadows can be seen on the Jovian disk.

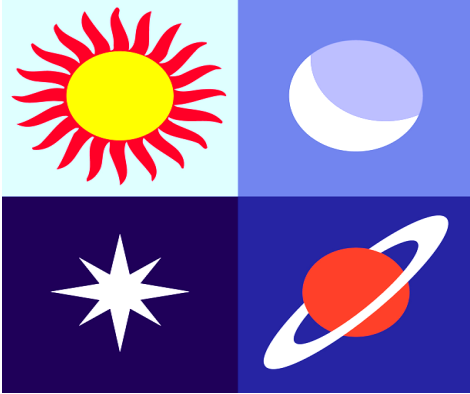
The Moon's phases are:

Last Quarter – 3rd
 New Moon – 11th
 First Quarter – 19th
 Full Moon – 26th

The Eta Aquariid meteor shower peaks on the morning of May 5th. This is a weak shower that produces rates from 10 to 30 meteors an hour. The meteors are swift, and can produce persistent trains, but no fireballs. The last quarter moon might interfere with observations a little bit. To see this shower, you have to go to a site where no lights are visible so the sky is as dark as possible.

David Nakamoto has been observing the heavens through various scopes since he was in the 5th grade. You can contact Dave by email at: dinakamoto@hotmail.com.





Almanac

May 6, 7 - Eta Aquarids Meteor Shower. The Eta Aquarids is an above average shower, capable of producing up to 60 meteors per hour at its peak. Most of the activity is seen in the Southern Hemisphere. In the Northern Hemisphere, the rate can reach about 30 meteors per hour. It is produced by dust particles left behind by comet Halley, which has been observed since ancient times. The shower runs annually from April 19 to May 28. It peaks this year on the night of May 6 and the morning of the May 7. The second quarter moon will block out some of the faintest meteors this year. But if you are patient, you should still be able to catch quite a few good ones. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Aquarius, but can appear anywhere in the sky.

May 11 - New Moon. The Moon will be located on the same side of the Earth as the Sun and will not be visible in the night sky. This phase occurs at 19:01 UTC. This is the best time of the month to observe faint objects such as galaxies and star clusters because there is no moonlight to interfere.

May 17 - Mercury at Greatest Eastern Elongation. The planet Mercury reaches greatest eastern elongation of 22 degrees from the Sun. This is the best time to view Mercury since it will be at its highest point above the horizon in the evening sky. Look for the planet low in the western sky just after sunset.

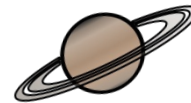
May 26 - Full Moon, Supermoon. The Moon will be located on the opposite side of the Earth as the Sun and its face will be fully illuminated. This phase occurs at 11:14 UTC. This full moon was known by early Native American tribes as the Flower Moon because this was the time of year when spring flowers appeared in abundance. This moon has also been known as the Corn Planting Moon and the Milk Moon. This is also the second of three supermoons for 2021. The Moon will be near its closest approach to the Earth and may look slightly larger and brighter than usual.

May 26 - Total Lunar Eclipse. A total lunar eclipse occurs when the Moon passes completely through the Earth's dark shadow, or umbra. During this type of eclipse, the Moon will gradually get darker and then take on a rusty or blood red color. The eclipse will be visible throughout the Pacific Ocean and parts of eastern Asia,

[NASA Map and Eclipse Information](#)

Source:

<http://www.seasky.org/astronomy/astronomy-calendar-2021.html>



Additional Links:

Moon Phases Chart for 2021

<https://www.mooninfo.org/moon-phases/2021.html>

Sky Report—Griffith Observatory

<http://www.griffithobservatory.org/sky/skyreport.html>

NASA News:

<https://www.nasa.gov/topics/solarsystem/index.html>

JPL News:

<https://www.jpl.nasa.gov/news/>

May 2021

Sun	Mon	Tue	Wed	Thu	Fri	Sat
						1
2	3	4	5 Board Meeting	6	7	8 Dark Sky Night (Pending)
9	10 General Meeting	11	12	13	14	15
16	17	18	19	20 NSN Webinar Artemis	21	22
23	24	25	26	27	28	29
30	31					

Meet The New Members

Welcome to the LAAS!



Leo Raksin

Tyler Moulton

Ron Mazzella

Kyle Moreno

Julian Maynes

Jonathan Burke and Roxanne Rankin

Armen Tyler Moulton

Robert Grenader

Daniel and Christine Watt

LAAS Board Meetings

.Due to the pandemic, all Board Meetings are now held online, live on Zoom. Please check the information posted in the IO Group Forum for any current news related to these meetings. If you wish to attend a board meeting, please send a request to secretary@laas.org for a link to Zoom.

Volunteer Opportunities

Every LAAS member is a volunteer at some point. Some members volunteer to share telescopes with the public, while others tackle administrative duties, help out at our community and public events, or join a club committee. Taking photos at our events and writing articles about events for our club newsletter are great ways to volunteer and become more involved in the LAAS as a member.

HOWEVER, due to Covid-19 restrictions in our area, all outreach events have been cancelled until further notice.

Volunteers are still needed to write articles for our monthly newsletter or share images captured of the night sky. Members are also welcome to come up with new ideas and future activities for the membership which can be shared in Board meetings. If you are artistic and enjoy creating posters or flyers, or printable astro-educational handouts for further star parties, please let us know.

Time To Renew Your Membership?

Please remember to renew your membership once you receive notice from the Club Secretary in your email inbox.

Please send any new contact information to the club secretary at secretary@LAAS.org.



LAAS Outreach Program

The mission of LAAS is to promote interest in and advance the knowledge of astronomy, optics, telescope making and related subjects. In furtherance of its mission, LAAS conducts public star parties and other outreach events that are intended to enhance the public's understanding of astronomy and its enjoyment and appreciation of the beauty and wonders of our universe.



We provide outreach events at local schools, Griffith Observatory, Mt. Wilson Observatory, various state and county parks, and community events.

Join our Outreach team of volunteers today.

Contact Heven Renteria, our Outreach Coordinator at Outreach@LAAS.org



Want to include astronomy outreach at your school's science night or open house? Follow the link below to access the request form:

https://nightsky.jpl.nasa.gov/club-eventrequest.cfm?Club_ID=1344

LAAS Club Swag

LAAS T-SHIRTS, HOODIES, MUGS, AND MORE!

To find new merchandise from our store, please use the following link: <https://www.laas.org/store>

Please note all prices listed are subject to change and include all shipping and handling costs. All items will be shipped directly to the address you provide on your order form.



Please remember all LAAS Outreach activities are postponed due to the Covid-19 pandemic.

Amazon Smiles

The LAAS is now listed on Amazon Smiles. When you purchase any goods on Amazon.com, Amazon will donate a small percentage of the funds they receive from you, back to the LAAS. Here's some information to help bring in funds for our club projects:

What is AmazonSmile?

AmazonSmile is a simple and automatic way for you to support your favorite charitable organization every time you shop, at no cost to you, with the added bonus that Amazon will donate a portion of the purchase price to your favorite charitable organization., such as the LAAS!

Learn more by following this link:

<http://smile.amazon.com/>



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John O'Bryan, Jr.

Treasurer

Astronomy Magazine Discounts

Discounts for astronomy magazines can be found on the internet. Look for the best deals possible. Send a copy of your LAAS membership card with your check or payment to receive a club member discount.

Astronomy
magazine

As a member of the Night Sky Network, you may use the above link to renew your Astronomy Magazine subscription (or enter a new subscription) at the club discount rate. If this is a renewal, Astronomy Magazine will match your entered name and address and extend your subscription. For inquiries, please contact Astronomy Magazine customer service & sales at 1-800-533-6644.

[Click here to subscribe to Sky and Telescope Magazine.](#)



Join the Astronomical Society of the Pacific and help support the cause of advancing science literacy through engagement in astronomy. Member benefits include a **subscription to the online Mercury Magazine**, published quarterly, and **Astronomy Beat**, a monthly on-line column written by "insiders" from the worlds of astronomy research and outreach.

Subscribe or renew to the McDonald Observatory's StarDate Magazine and receive a special discount. Go to this page and press "Add to Cart" under the kind of subscription you want:

<http://stardate.org/store/subscribe>
Then, on the Checkout form, enter "network" in the Coupon Code box.



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Griffith Observatory:

213-473-0800

Sky Report:

213-473-0880



Follow us on social media by clicking
on one of the images below



Instagram



Find astronomy outreach activities by
visiting NASA's Night Sky Network:

<https://nightsky.jpl.nasa.gov/about.cfm>

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