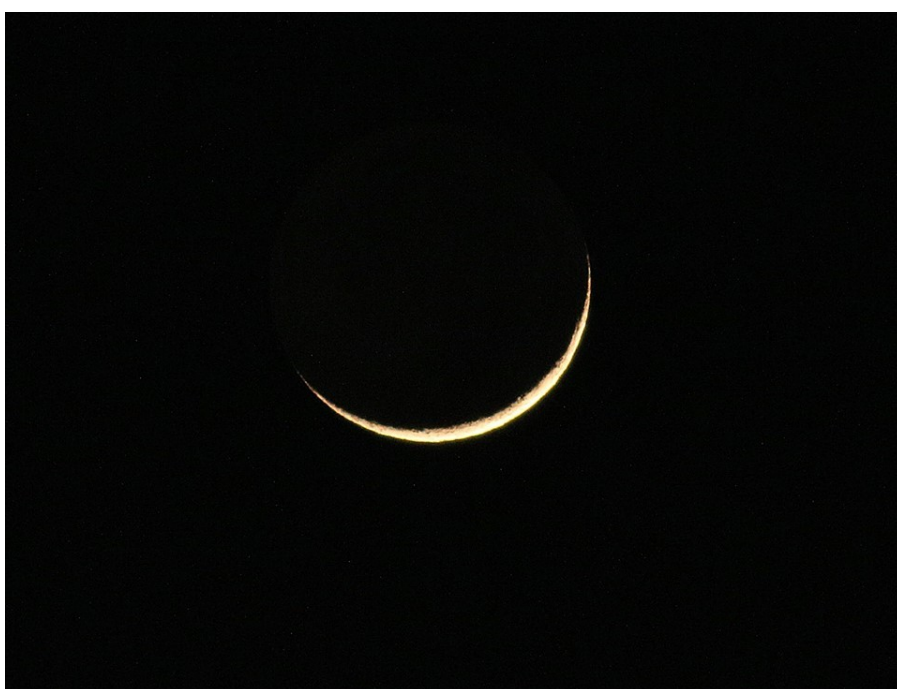




# THE LOS ANGELES ASTRONOMICAL SOCIETY

MARCH, 2019  
VOLUME 93, ISSUE 03

# THE BULLETIN



February 7, 2019

Photo Credit: Ray Blumhorst

Last night, about an hour after sunset, the 4% illuminated Moon was a thin sliver low in the western sky. This photo was taken with a Canon 70D, while I leaned against a Palm tree for support. The lens was a 400mm telephoto and shutter speed was 1/60.

Interested in joining the Los Angeles Astronomical Society?  
To find our membership application and further information,  
please visit our website at [LAAS.org](http://LAAS.org).

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**The Mt. Wilson Nights' schedule for 2019 is on Page 10. Please make your reservations before these spectacular events are all booked up!**

### New Contact Info?

If you have recently moved, changed your email address or phone number, please contact our club secretary by sending an email to [secretary@laas.org](mailto:secretary@laas.org) with your new contact information.

# Tim Russ

## Sky-Watcher USA Ambassador



Sky-Watcher USA is proud to announce the signing of Tim Russ of Star Trek: Voyager and iCarly Fame as the New Sky-Watcher Brand Ambassador. <https://www.imdb.com/name/nm0750913/> - Born on June 22, 1956, his interest in astronomy started at an early age. Tim Russ's career spans over multiple decades. Known for his TV work, he can also be heard as a voice actor in multiple animated series, video games, and even holds credits for directing and producing. Tim is currently working on various projects including "NASA Files, " featured on NASA TV and on other TV projects.

Tim Russ is one of the only cast members from the Star Trek Franchise who is an actual astronomer and is a member of the Los Angeles Astro-

nomical Society (LAAS). Tim Russ also makes guest appearances at regular sci-fi conventions all over the world. Tim is currently scheduled for the Official Star Trek convention in Las Vegas on July 31, 2019.

"Having Tim bring our products to the public to share his passion for astronomy and the night sky is something we're very excited about. Tim's history and association with space and exploration are a natural fit for what we're doing every day here at Sky-Watcher. I feel strongly that this will be a long and mutually beneficial relationship." – Jeff Simon, Sky-Watcher USA Director.



*Photo: Jeff Simon with Tim Russ*

His role as Brand Ambassador will include public outreach and awareness of Astronomy in general from a physical and visual aspect. "I am pleased and excited to be working with Sky-Watcher USA to help promote astronomy to the world. Not only am I excited to use the product, I want people to see and understand astronomy is available to everyone and anyone, of all ages. I enjoy sharing my passion with everyone and I hope to see everyone out there on the fields looking up at the night skies." - Tim Russ, Actor, Producer & Director.

Tim Russ has chosen the Sky-Watcher AZ-GTi with the SkyMax 127 as his choice of mount and telescope to help raise awareness of astronomy. You will be able to find Tim at most Public Star Parties with the Los Angeles Astronomical Society at the Griffith Park Observatory in Hollywood, Ca. <http://www.laas.org>

Woodland Hills Camera and Telescope is also proud to announce the news with an introduction offer on various Sky-Watcher products\* in celebration of Tim Russ signing as Brand Ambassador. For details on limited time offers, visit [www.telescopes.net](http://www.telescopes.net).

Simon Tang

Woodland Hills Camera

# An Overview of Potential Future Flagship Space Telescopes

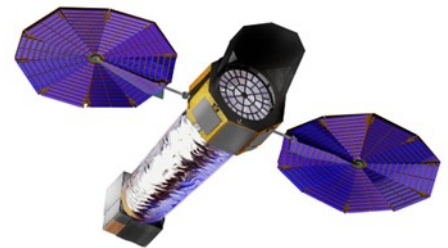
Evan Hilgemann

The year 2020 will be an important one for astronomers across the globe due to the release of the Astronomy and Astrophysics Decadal Survey. This substantial document, published once a decade by the National Academy of the Sciences at the request of NASA, will set exploration priorities for at least the coming decade. Although NASA is not bound by the decadal recommendations, the document presents a unified voice for the science community and has been the origin of many well-known spacecraft including the Hubble Space Telescope, Chandra X-ray Observatory, Spitzer Space Telescope, and Compton Gamma Ray Observatory.

In preparation for the 2020 Astrophysics Decadal Survey (there are separate surveys for topics such as planetary science) NASA is funding four telescope studies, each summarized below. The decadal survey committee will only select one of these concepts to be further developed with the goal of flying around 2035. So keep in mind that although the final spacecraft will look much different than the artists' renderings, one of these concepts represents the next generation of spaceborne astronomy.

Note that the information here was taken from the respective study interim reports. The reports are publicly available at the indicated URLs for the avid reader.

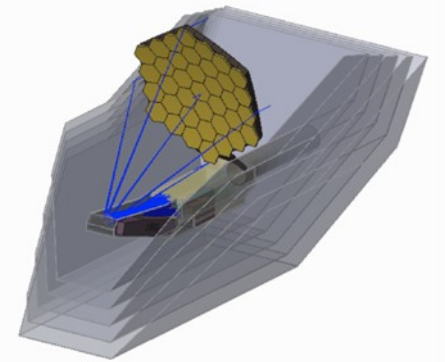
**Lynx X-Ray Surveyor:** Observations in the X-ray band cannot be made from the surface of earth due to atmospheric absorption, but they are necessary to study some of the most influential processes in the universe. Lynx can observe these normally invisible signals in unprecedented detail. The science goals focus on studying some of the highly energetic events including black hole formation, galactic formation, and the processes that drive stellar birth and death. Lynx can be viewed as the next generation of NASA's existing Chandra X-Ray Observatory. This project is managed by NASA's Marshall Spaceflight Center in Huntsville, AL.



Interim Report: <https://wwwastro.msfc.nasa.gov/lynx/docs/LynxInterimReport.pdf>

**Origins Space Telescope (OST):** The OST features a 9.1m diameter primary mirror and is tuned to look in the far infrared band, or light with a wavelength a bit longer than red light. This is a useful band for probing molecular dust in the cosmos and searching for exoplanets. The target object of the OST would be wide ranging however, and include the structures of the early universe, placement of water through the cosmos, and potentially habitable exoplanets (which is a common trend in most of these mission proposals). This project is managed by the Goddard Spaceflight Center in Greenbelt, MD.

Interim Report: [https://asd.gsfc.nasa.gov/firs/docs/OST\\_Interim\\_Study\\_Report.pdf](https://asd.gsfc.nasa.gov/firs/docs/OST_Interim_Study_Report.pdf)

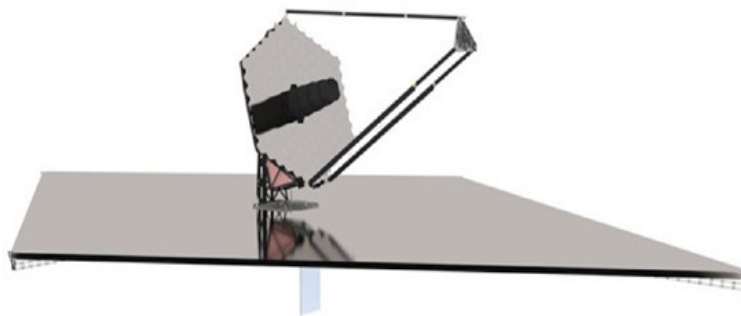


**Habitable Exoplanet Observer (HabEx):** As the name of this telescope suggests, HabEx is geared towards exploring exoplanets. The single 4m diameter mirror is paired with advanced instruments including a coronagraph and external starshade. These instruments block out the light from distant stars so planets can be imaged and studied in higher detail than currently possible (see the September 2018 Newsletter for more information). The telescope would also be capable of studying a wide range of targets from objects in our own solar system all the way to distant galaxies in the ultraviolet to infrared regions. If selected, this mission would go a long way in determining how truly unique planets like Earth are in the galaxy. HabEx is managed by the Jet Propulsion Laboratory in Pasadena, CA.



Interim Report: [https://www.jpl.nasa.gov/habex/pdf/HabEx\\_Interim\\_Report.pdf](https://www.jpl.nasa.gov/habex/pdf/HabEx_Interim_Report.pdf)

**The Large UV Optical Infrared Surveyor (LUVOIR):** The most ambitious project under consideration is LUVOIR, a large segmented telescope architecture 8m to 15m in diameter depending on what launch vehicles become available. LUVOIR was conceived in the true spirit of *Great Observatory* and has capabilities useful to a large cross section of the astrophysics community. Science goals focus on “telling the story of life in the universe.” High on the list include exoplanet imaging and characterization using a coronagraph and potentially a starshade. But the telescope would do much more including remote sensing of objects in our solar system and exploring the origins of stars, galaxies and planetary systems. The project is managed by the Goddard Spaceflight Center in Greenbelt, MD.



Interim Report: [https://asd.gsfc.nasa.gov/luvoir/resources/docs/LUVOIR\\_Interim\\_Report\\_Final.pdf](https://asd.gsfc.nasa.gov/luvoir/resources/docs/LUVOIR_Interim_Report_Final.pdf)

*This work was done as a private venture and not in the author's capacity as an employee of the Jet Propulsion Laboratory, California Institute of Technology. Any views and opinions expressed herein do not necessarily state or reflect those of NASA, JPL, or the California Institute of Technology.*

# The Medusa Nebula (Sh2-274)

Brian Paczkowski



The Medusa Nebula (Sh2-274) taken over several weeks in January 2019. A large, faint, planetary nebula in the constellation of Gemini. This is a narrowband composite made from a combined 22 hours of Ha, OIII, and SII filter data taken from my heavily light polluted backyard in Tujunga, CA. The false color composite was made using this formula: Red=75% Ha+25% SII, Green=75% OIII+25% SII, and Blue=100% OIII. Stacked in Nebulosity and processed in PixInsight (Celestron 1100 EdgeHD, 0.7x focal reducer, 10Micron GM2000 HPS II mount, ZWO ASI 1600mm-cool)

# Volunteer Position Open

## Writer Needed - Monthly Star Report



The LAAS has an immediate opening for a volunteer to write a monthly night sky report. This report would include any and all objects found in the sky for each month and any astronomical events which may occur, such as meteor showers, eclipses, moon phases, comets, etc.

This report will be featured in the LAAS Bulletin, our newsletter and in Monterey Park's newspaper, "The Cascades." The writer will have to contact the city to make arrangements to ensure the article is placed in the paper monthly on the first week of the month for the following month. The Cascades is a well-read publication and the article is of great interest to the local community and surrounding cities in the San Gabriel Valley area.

Learn more about the newspaper here: <https://www.montereypark.ca.gov/576/Cascades-Newspaper>

The monthly star report is in integral part of our newsletter. As the publication is viewable on our website for

both club members and the public, the report's content is an easy-to-read guide for anyone interested in learning more about our night sky. The article motivates more people to journey outside and look up, inspiring many to join astronomy organizations or attend local astronomy events, such as star parties.

The Bulletin's deadline for submissions are on the 18th of every month. This means your star report must be in no later than the 18th. You may add an image or photograph to enhance your report.

This opportunity has no age limit. If you are a student, you are welcome to apply for the position by sending in a star report of your own for the month of April. All members are welcome to apply. Having a light background and knowledge of astronomy would be appreciated. If you always wanted to be a Science Writer or journalist, this may be the opportunity for you.

I want to take a moment to thank Tre Gibbs, who left the Los Angeles area several years ago. He continued to volunteer to write the star report which was also published in a local newspaper in the Napa Valley. Tre used to work at the Griffith Observatory and enjoyed writing for the LAAS to share his passion for astronomy with the public and the membership. His work was greatly appreciated and enjoyed by many. Tre is moving on to other things now and let's all wish him the best life has to offer.

If you are sincerely interested in this voluntary position with the LAAS, please contact me at your earliest convenience. I am hoping to find someone who will commit to writing one article a month, for one year (or longer.)

Thank you,

Andee Sherwood

Editor

[Communications@laas.org](mailto:Communications@laas.org)

# Springtime Star Party

## David Prosper

March brings longer days for Northern Hemisphere observers, especially by the time of the equinox. Early risers are treated to the majority of the bright planets dancing in the morning skies, with the Moon passing between them at the beginning and end of the month.

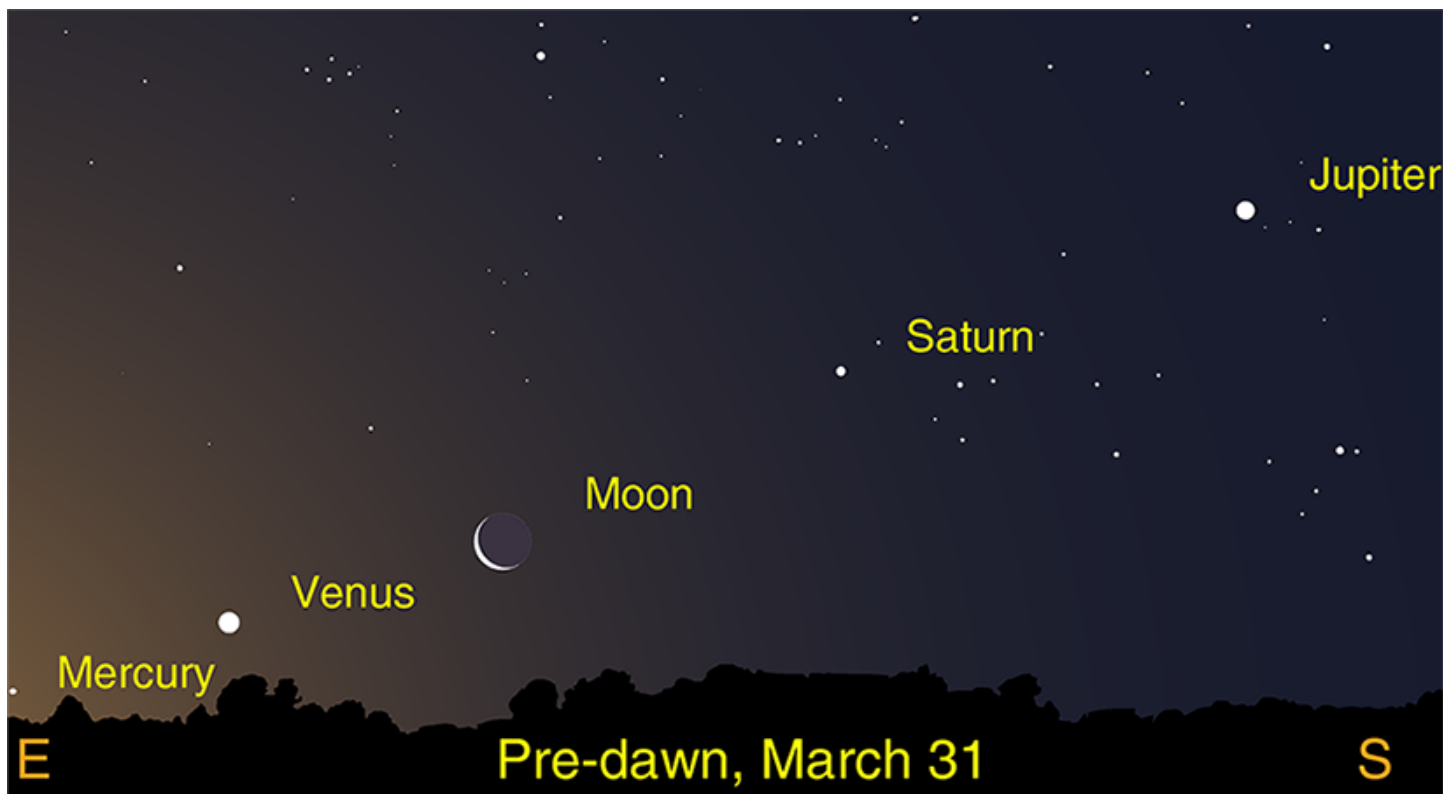
The vernal equinox occurs on March 20, marking the official beginning of spring for the Northern Hemisphere. Our Sun shines equally on the Northern and Southern Hemispheres during the moment of equinox, which is why the March and September equinoxes are the only times of the year when the Earth's north and south poles are simultaneously lit by sunlight. Exacting astronomers will note that the length of day and night on the equinox are not precisely equal; the date when they are closest to equal depends on your latitude, and may occur a few days earlier or later than the equinox itself. One complicating factor is that the Sun isn't a point light source, but a disc. Its edge is refracted by our atmosphere as it rises and sets, which adds several minutes of light to every day. The Sun doesn't neatly wink on and off at sunrise and sunset like a light bulb, and so there isn't a perfect split of day and night on the equinox - but it's very close!

Ruddy Mars still shines in the west after sunset. Mars scoots across the early evening skies from Aries towards Taurus and meets the sparkling Pleiades star cluster by month's end.

March opens with the morning planets of Jupiter, Saturn, and Venus spread out over the southeastern horizon before sunrise. A crescent Moon comes very close to Saturn on the 1st and occults the ringed planet during the daytime. Lucky observers may be able to spot Mercury by the end of the month. March 31 opens with a beautiful set of planets and a crescent Moon strung diagonally across the early morning sky. Start with bright Jupiter, almost due south shortly before dawn. Then slide down and east towards Saturn, prominent but not nearly as bright as Jupiter. Continue east to the Moon, and then towards the beacon that is Venus, its gleam piercing through the early morning light. End with a challenge: can you find elusive Mercury above the eastern horizon? Binoculars may be needed to spot the closest planet to the Sun as it will be low and obscured by dawn's encroaching glow. What a way to close out March! Discover all of NASA's current and future missions at [nasa.gov](http://nasa.gov).



Caption: Earth from orbit on the March equinox, as viewed by EUMETSAT. Notice how the terminator – the line between day and night - touches both the north and south poles. Additional information can be found at <http://bit.ly/earthequinox> Image credit: NASA/Robert Simmon



Caption: The morning planets on March 31. Image created with assistance from Stellarium.



This article is distributed by NASA Night Sky Network  
The Night Sky Network program supports astronomy  
clubs across the USA dedicated to astronomy outreach.  
Visit [nightsky.jpl.nasa.org](https://nightsky.jpl.nasa.org) to find local clubs, events, and  
more!



# Outreach Reports and Photos

By Van Webster

## Plummer Elementary School (North Hills)

**Date:** Thursday, February 07, 2019

**Time:** 5:00 PM – 6:30 PM

More than a month of rainy winter nights had kept the astronomers from the Los Angeles Astronomical Society away from local schools for outreach events. So it was fortuitous that clear skies prevailed on the evening of February 7, 2019 at Plummer Elementary School in North Hills for an evening of star gazing.



The night was crisp and most of the LAAS members sported their blue jackets, making for a coordinated group appearance. Refractors were the scopes of the evening with three of the lensed instruments of various sizes (and price tags) set up on their tripods. A 12" SC and a 13" Dob made up for an impressive arsenal of optic firepower.



About 100 students, older siblings, parents, faculty, staff and administrators eagerly lined up to view the heavenly offerings. A narrow crescent moon was the first target of opportunity. Those with computers on their scopes quickly caught Betelgeuse and Sirius. As the sky darkened, M42 became a popular target along with the distant planet Mars, looking more white than red-orange in the scopes.

School staff wheeled out a cart with a pot of hot coffee and sweet treats to fend off the cold for the astronomers.

The crowds came and went quickly. By 6:45 the students had retreated to their warm homes. The astronomers packed their gear, said good night and headed off into the wilds of Los Angeles traffic.

Photo credit: Van Webster



# Mt. Wilson Nights

## 2019 Session Schedule

### Session Schedule:

#### 60 Inch Nights

Saturday, April 6  
 Saturday, May 4  
 Friday, August 23  
 Friday, Sept. 27  
 Saturday, Oct. 26  
 Saturday, Nov. 23

#### 100 Inch Night

Saturday, June 1

The prices for these nights are as follows:

\$50 - 60 Inch Nights

\$170 - 100 Inch Night

All of the dates above have been posted on the club calendar. These are private events exclusive to current LAAS members, families, and their guests only.

Please click on the following link to contact Darrell Dooley, our Mt. Wilson Coordinator before submitting payment.

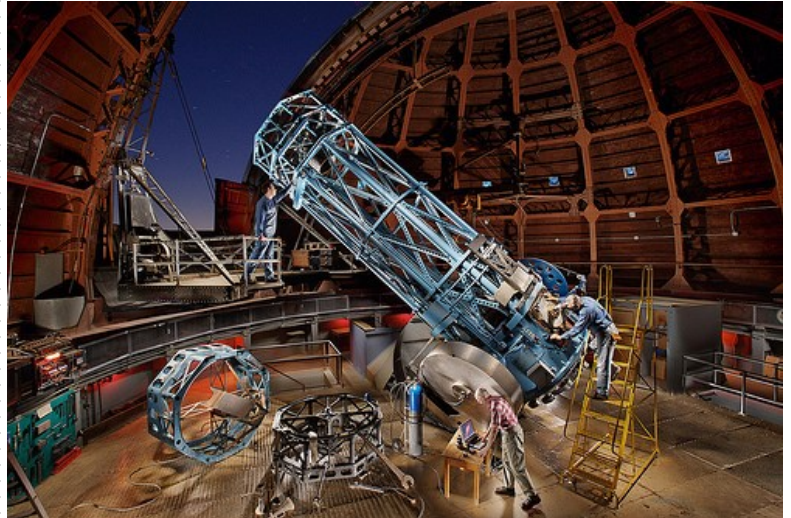
[mtwilsoncoordinator@laas.org](mailto:mtwilsoncoordinator@laas.org).

To pay using PayPal or by credit card, please use the following link:

<https://fs30.formsite.com/LAAS/MtWilson/index.html>

To pay by check, please mail your check to:

LAAS c/o Griffith Observatory  
 2800 E. Observatory Road



\*Please write "60 Inch" on your check. Make your check payable to: LAAS

Note: If you pay by check, your check may be held by our Treasurer for several weeks, before clearing your bank.

## Meet The New Members

# Welcome to the LAAS!



Tristin Rose

Mark Yoshida

The Magner Family

Lizette Robles

The Mastro Family

John Hollenberg

Leticia Sierra

## LAAS Board Meetings

Our LAAS Board Meetings take place once a month at the Garvey Ranch Park Observatory. You can find the dates for these meetings on our event calendar. All members are welcome to attend all Board meetings. These meetings begin at 8 PM.

All current members may listen to recorded meetings by logging on to our website at LAAS.org and clicking on the "Members Only" tab to find the files. Contact: [webmaster@laas.org](mailto:webmaster@laas.org) for your login credentials.

## 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.

Participating at one of our outreach events is another fine and fulfilling opportunity. This is YOUR club. Don't sit back and let other members do the work and have all the fun! Speak with a club officer and find out how you can volunteer and get more involved in the LAAS as a member.

## Time To Renew Your Membership?

Please remember to renew your membership once you receive notice from the Club Secretary in your email inbox. Use this link to learn how to renew your membership:

<https://fs30.formsite.com/LAAS/MemberRenewal/index.html>

Please send any new contact information to the club secretary at [secretary@LAAS.org](mailto:secretary@LAAS.org).



# A Guide To The Night Sky

By Tre Gibbs



**March** brings the return of Spring to the Northern Hemisphere with the annual Vernal Equinox!

On Wednesday, March 20th at approximately 2:58pm, Spring will officially begin, while our neighbors below the equator in the Southern Hemisphere will simultaneously be celebrating the return of Autumn. On this day, both the Northern and Southern Hemisphere will receive equal amounts of daylight and darkness, hence the term *Equinox* which is Latin for “*Equal Night*”. Back in December, ever since the Winter Solstice, the sun has been gradually making its way northward. On the Equinoxes, the sun rises due east and sets due west, right in the middle - equidistant between the rising and setting locations of the sun during the Solstices. After this day however, the amount of daylight becomes greater than the amount of night time, as the sun continues its journey northward and the days continue to get longer until June 21st, The Summer Solstice.

March 20th not only ushers in The Vernal (or Spring) Equinox but also this month’s Full Moon! The full moon in March is known as the *Full Worm Moon*. This is the time of the year when the ground begins to soften and the earth worm casts reappear, inviting the return of the Robin - a true

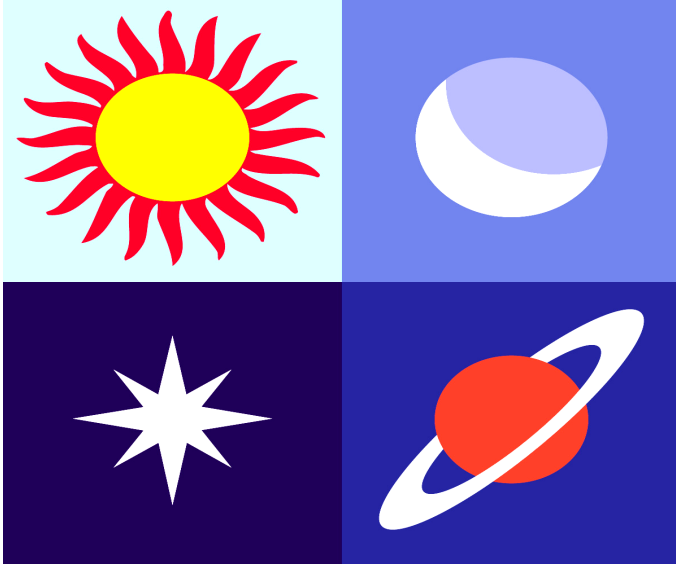
sign of Spring. As always, the moon appears full because it is opposite the sun relative to Earth, therefore we see the entire face of the moon illuminated, rather than just a sliver or part of it. The moon being opposite the sun (or full) also means it *rises in the east* at the same time the sun is *setting in the west*.

As always, the moon travels the sky with several planets this month. Early risers will be treated to Venus, Jupiter and Saturn in the pre-dawn skies, while early evening star gazers will be able to view The God of War, Mars. On the morning of March 1st - at about 5:00 am - look towards the Southeast to see Venus, Saturn, the Moon and Jupiter all lined up in a diagonal line stretching from low in the east to high in the southeast. Venus, The Goddess of Beauty & Love, is the lowest and brightest, Jupiter, The Roman King of the Gods, will be the highest and second brightest, while Saturn (the God of Agriculture AND the farthest naked eye planet) will be less spectacularly bright and just to the left of the moon. The following morning however, the waning crescent moon slips further east and travels the sky to the right of Venus. In the early evening hours of March 11th, look to the west for faint, reddish Mars to the right of the young waxing crescent moon. Towards month’s end, the moon has continued its monthly orbit around our planet and will line up with Jupiter and Saturn again. In the pre-dawn skies of March 26th, look for bright Jupiter to the left and slightly below the waning gibbous moon. If you miss it, don’t fret - the next morning, March 27th, you can see the moon on the other side of Jupiter, just slightly below and to the left of the Roman King of the Gods. The morning after that, the moon, continuing its journey eastward through the sky, pairs up with the faint but quintessential Saturn, whose spectacular ring system makes it a favorite of just about everyone’s - though you’ll need a telescope to see that particular detail. Look for Saturn just below and to the left of the moon before sunrise on March 28th, while on the 29th, the moon has slipped past Saturn and now travels the pre-dawn skies to the left of the distant ringed wanderer....

Enjoy all the night sky has to offer - and remember, KEEP LOOKING UP!

*Tre Gibbs has been writing our star reports for several years and is retiring from this task. He also shared his report in Monterey Park’s publication, “The Cascades” and in a local newspaper in Sonoma, CA. If you could like to write a monthly star report for the LAAS, please contact Andee at [communications@laas.org](mailto:communications@laas.org) as soon as possible.*

# Almanac



**March 6 - 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 16:04 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.

**March 20 - March Equinox.** The March equinox occurs at 21:58 UTC. The Sun will shine directly on the equator and there will be nearly equal amounts of day and night throughout the world. This is also the first day of spring (vernal equinox) in the Northern Hemisphere and the first day of fall (autumnal equinox) in the Southern Hemisphere.

Need Help With A New Telescope?

Visit the Garvey Ranch Observatory on any Wednesday night 7 PM to 10 PM for tips and assistance from your fellow LAAS members. **This is a free event for the public.**

Learn more: [The Garvey Ranch Park Observatory](#)

**March 21 - 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 01:43 UTC. This full moon was known by early Native American tribes as the Full Worm Moon because this was the time of year when the ground would begin to soften and the earthworms would reappear. This moon has also been known as the Full Crow Moon, the Full Crust Moon, the Full Sap Moon, and the Lenten Moon. This is also the last of three supermoons for 2019. The Moon will be at its closest approach to the Earth and may look slightly larger and brighter than usual.

Source: <http://www.seasky.org/astronomy/astronomy-calendar-2019.html>

Looking for more astronomy events? Check out Griffith Observatory's calendar by visiting their website:

<http://www.griffithobservatory.org/programs/calendar.html>



# March 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2 Dark Sky Night
3	4	5	6 Garvey Board Meeting	7	8 Outreach/ Culver City	9 Messier Marathon -TDB
10	11 General Meeting	12	13 Garvey Lkwd Comm Outreach/LA	14	15 Outreach/LA	16 Public Star Party
17	18	19	20 Garvey	21	22 Outreach/E.LA	23
24	25	26	27 Garvey	28	29 Outreach/ Sierra	30
31						

Additional events with updated information may be posted on the calendar. Please log on to your account on the Night Sky Network (NSN) to view the complete schedule of club events. Link: <https://nightsky.jpl.nasa.gov/>

## 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](mailto: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](https://nightsky.jpl.nasa.gov/club-eventrequest.cfm?Club_ID=1344)

## LAAS Club Swag

### LAAS JACKETS, T-SHIRTS, AND CAPS

Share your club spirit with the public and wear your club colors to help identify you as a member of the LAAS today by ordering a new jacket, t-shirt or cap.

If you would like to purchase club jackets, T-shirts, or caps featuring our club logo, please look for Richard Roosman at the public star party and at our general meeting. Richard will have the club merchandise on sale from 2 PM to 6 PM at the star party.

For further information, feel free to contact Richard at [Richardinwalnutpark@msn.com](mailto:Richardinwalnutpark@msn.com).

You can also use the link on Paypal, if you would like to place an order for club merchandise by using the following link:

<http://laas.org/joomlasite/index.php/laas-merchandise>



## 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 for a NEW Sky & Telescope subscription at the club discount rate.](#)

[Click here for online renewal of your Sky & Telescope magazine subscription](#)



[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.





## Club Contact Information

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treasurer@laas.org

**Secretary:** Spencer Soohoo

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**Outreach Coordinator:** Heven Renteria

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## Club Contacts

### Club Phone Numbers

**LAAS Message Phone:**

213- 673-7355 (Checked daily)

**Griffith Observatory:**

213-473-0800

**Sky Report:**

213-473-0880

**Lockwood Site:**

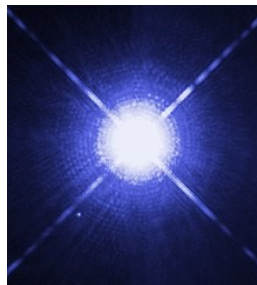
661-245-2106

Not answered, arrange  
time with caller.

Outgoing calls – Collect or calling card only.



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Call us for more information and  
about our organization and  
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213-673-7355

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