



THE LOS ANGELES ASTRONOMICAL SOCIETY

THE BULLETIN

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M106 Galaxy. An interesting Seyfert II galaxy with a very active supermassive black hole at its center. A combination of H-alpha and LRGB images. 2 hours of Luminance, 1.5 hours of RGB, and 13 hours of H-alpha. LRGB data taken at Lockwood Valley, H-alpha data taken from Tujunga, CA. The H-alpha data shows a faint jet coming from the center. (Celestron 1100 Edge HD, 0.7x focal reducer, CGEMDX, ZWO ASI 1600mm-cool)

LAAS Dates To Remember

Board Meeting: June 6th. ~ General Meeting: June 11th.

Public Star Party: June 23rd.

FAMILY NIGHTS ARE BACK!

LAAS members' friends and families are all invited to spend an evening of dark sky observation and fun on Family Night at our dark sky site. Go to Page _ to learn more about this club event.

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What's the
Buzz???



Public Star Party News!

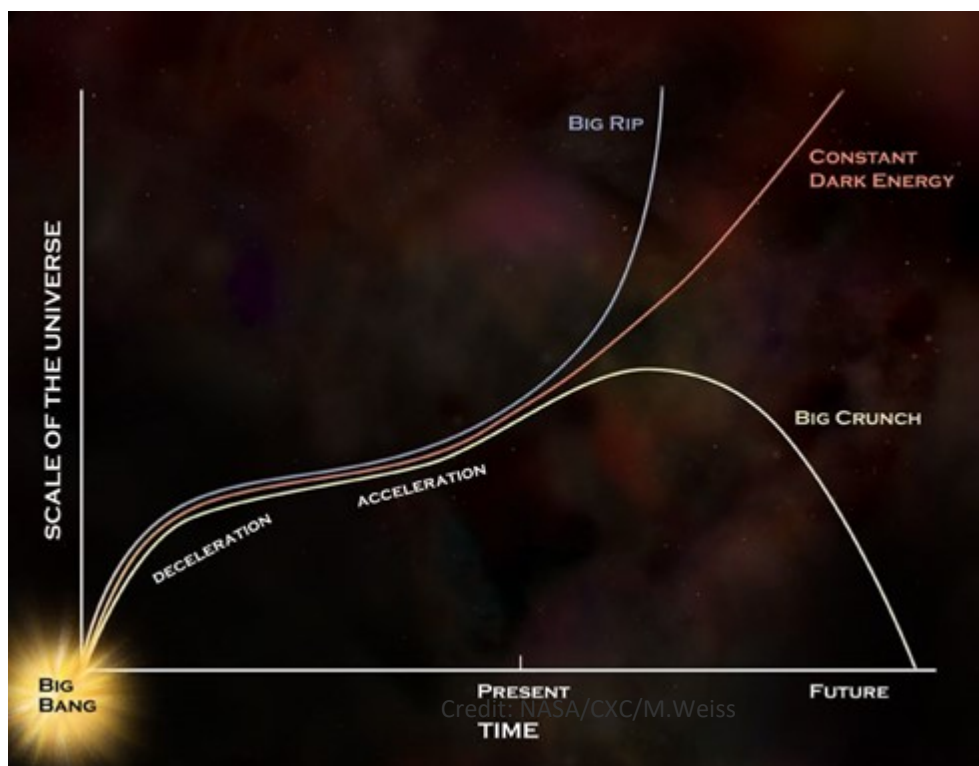
Starting in June, the Public Star Party end time will be extended to 10:30 PM. This will continue through August, 2018.

The Universe's Accelerating Expansion

By Bryan Demapan

Since Edwin Hubble's discovery of an expanding universe in 1929, physicists and astronomers have been trying to describe the universe's ultimate fate. Such discovery prompted major support of the Big Bang Theory where the universe expanded from an extremely dense and hot state in the past. Based on this theory, the universe could eventually stop expanding and start to collapse, known as the "Big Crunch," or it can expand forever at a slower rate. Many astronomers support the idea of the endless expansion of space, known as the "Big Chill," where galaxies drift apart and stars fade, leading to a cold and dark universe. However, a recent discovery challenges not only this popular idea that describes the universe's expansion rate but also a fundamental law in physics.

Observations demonstrate that the rate of expansion for the universe is accelerating. Something is responsible for driving the rapid expansion of space. Such phenomenon appears to have a repulsive force that counteracts gravity at large scales of the universe. This repulsive force is known as dark energy, which astronomers and physicists know little about. Dark energy is invisible yet comprises close to 75 percent of the universe.



There are three scenarios on the universe's fate depending on the true nature of dark energy. If dark energy is constant or variable, then universe will expand eternally or end in a Big Crunch. The Big Rip is a dramatic scenario in which dark energy's repulsive force is so great that galaxies, stars, planets, and possible atoms are ripped apart.

A group of researchers, called the High-z Supernova Search Team, found that the universe's expansion was accelerating by studying the explosions of stars called supernovae. Supernovae can release a tremendous amount of energy and light that can outshine an entire galaxy across vast distances in space. The researchers focused on Type Ia supernovae, which are the explosions of white dwarf stars in a binary system. White dwarves are the remnants of low mass stars, similar to our Sun, resulting from shedding its outer layers and leaving behind a very dense and hot core. When a white dwarf exceeds a mass that is 40 percent of the Sun, it will trigger a Type Ia supernova.

Through Type Ia supernovae, the size of the universe can be measured at the time a supernova occurred. The supernovae's light wave has been traveling for over billions of years before reaching Earth. During that time, the universe was expanding and the expansion stretches the traveling wave making the light redder in a process called "redshifting." The greater the expansion of the universe between the supernova and when the light reaches Earth, the more the light is stretched.

The light from Type Ia supernovae is useful in astronomy as it known to be a "standard candle." Standard candles are sources that have a known strength of light, also called absolute luminosity. Since astronomers know how bright Type Ia supernovae are, they could measure the distances to such sources of light from us by analyzing how dim the sources appear. The distances can easily be measure through the inverse square law where the intensity of light is proportional to the inverse square of the distance.



Since SN Ia involve an explosion that occurs at around the Chandrasekhar mass, they are a very standardized phenomenon and so have about the same luminosity. If you know the intrinsic brightness and can measure the observed brightness, you can use the inverse square law to determine the distance to the object.

Hi Newbie!

By Kevin Gilchrist

A heartfelt welcome to the many new members of the LAAS.

A show of hands, please –

How many here are new to amateur astronomy?

How many are spellbound by images from the Hubble Space Telescope?

How many of you went to the camera/telescope store to buy a telescope to “See Mars as big as the Moon!” and came away with something you are now experiencing buyer’s remorse, or worse yet, your spouse is considering divorce or calling the men in the van with white coats?

Welcome to the club!

With several requests from members who were hoping that they could get an experienced member to help them with setting up their new white elephant, the Board is now attempting to put together an afternoon and evening at Garvey Ranch Park Observatory just for you. As of writing this, we haven’t settled on a date, but most likely it will happen on the day we will have the New Member Potluck. Watch for announcements via the club media.

With that said, I took it upon myself to poke around on YouTube to find some how-to videos. It’s good to watch someone who knows about the subject, right? As George Takei would say, “Oh, my!”

There are many, many, many videos out there that fall short of the goal of introducing people to our geeky world. Bad lighting, bad camera angles, bad sound. I was able to find three people who came across to me as knowing what they were talking about, whether it be from long-time experience or they were doing a good job at sharing their first-time experiences and we can see them making errors or hear them admit that they did something wrong. Even the most experienced can have an off-night with equipment, software, or just trying to make-do with not-so-favorable weather conditions.

As a prelude to live help, I invite the reader to watch the following YouTube videos:

<https://youtu.be/TdkB5NCnFps>

<https://youtu.be/2oG73hVHzf0>
<https://youtu.be/UPoh76f60kA>

<https://youtu.be/bM9g18Q109o>

Presented by Robert J Dalby, [Astronomy and Nature TV](#) has several videos that I think are quite accessible to the beginner as well as the more experienced.



<https://youtu.be/diM2-oBYI3A>

<https://youtu.be/k1uBT3lrzgl> (This is a rather good video for planetary imagers but for whatever reason I can’t get the hyperlink to work today. Please copy and paste in YouTube.)

Presented by [Dylan O'Donnell](#), he has a few videos that cover a range of topics and sometimes is brand and model specific. He works alone so there are glitches with focus, but I can still recommend these, but you will need to look over the titles and decide for yourself. There aren’t that many of them.



For the little more advanced:

<https://youtu.be/il0z2i7wfi0>

<https://youtu.be/8Z9YssmGruQ>

<https://youtu.be/aHkCAqIEhcM>

Presented by Trevor Jones, [AstroBackyard](#) follows Trevor's experiences as he learns the ropes. We see his successes and his failures, but he is lucky in that he gets to try out telescopes and cameras on-loan from Ontario Telescope & Accessories (Canada) thanks to his videos and blog reviews. His main interest is Deep Sky imaging, but much of what he shows us can be applied to entry-level imagers using DSLR cameras. He talks about much more than just DSLR's, but his software experiences, various OTA's, etc.



I suspect that many readers have gotten, or will get, a scope because of the upcoming opposition of Mars. At the time of my writing this article, the opposition of Jupiter occurs tonight. Many will want to take their own photos of Mars, Jupiter, and Saturn. These are easy targets, even in Los Angeles light pollution. While I can't go into detail in this article (there are just too many variables of camera brands/models, scope and mount types) but allow me state that the best way to learn about your new scope is to set it up in daylight. It doesn't even need to be pointing north. The point is to learn where things are and how to work with them - and get used to them while wearing gloves. It's better to have an eyepiece or diagonal fall out and onto a rug than to fall in the dirt or on concrete. Get to know all the screws, knobs, clutch levers, and the like before heading out to a dark site or your driveway. Resist temptation! Resistance is not futile if it keeps your rig free of unsightly dings, dirt, and loose optics.

Kevin Gilchrist



Lockwood Clean Up, May 5, 2018

Many thanks to the volunteers who came up to wield weed-whackers, paint brushes, screw drivers, and brooms. Zoly Dobrovics and his lovely wife, Kriszta, Ken Powers, Grant Mills, Jim Wood, Mike Ogle, Robert Brothers, Hector Vazquez, Geoffrey Robertson, Mike Hayford, and Bruce Lathrop helped get the weeds cut before the June 1st deadline. Did I miss anyone? The edges of pads, steps, and other trip hazards have been given a fresh coat of white paint. The big additions were two bunk bed units have been put up in the rear bedroom of the warm-up trailer, a new field mower obtained for cutting large swathes of weeds, and a propane gas grille has been donated by John O'Bryan. Dave Sovereign donated two folding cots. Thanks, Dave and John!

This is not to say we are completely done, there are a few more items to paint and things to fix up.

Kevin Gilchrist



FAMILY NIGHT

Date: Saturday, June 9, 2018

Time: 5:00 PM - TBD by group

Location: Lockwood Valley

Sunset: 8:11 PM

Family Nights are scheduled at our Lockwood Dark Sky site best known as the Steve Kufeld Astronomical Site (SKAS). Here is a link on our website to learn more about this special club facility:

<http://laas.org/joomlasite/index.php/dark-sky-observing>

Family Nights were created in 2011 for all club members and families to enjoy a night of dark sky observation far from the city lights of Los Angeles. You may bring camping equipment or campers and stay for the entire evening. It's a star party and gives our members an opportunity to view celestial objects normally not visible in the sky over the city. Due to extreme weather conditions, we only offer these nights to our members during warmer months.

Gates open at 4 PM and the departure times will be discussed with the group. Please arrive early before sunset to become familiar with the grounds and set up equipment. Some of our members enjoy setting up a pot-luck-style meal which you may find discussed on our Yahoo group.



Family Night -8/27/2017 - Photo credit: Ray Blumhorst

Session Nights

Mt. Wilson Observatory

2018 Session Schedule:

- June 9th (Sat)
- July 7th (Sat)
- August 4th (Sat)
- September 7th (Fri)
- October 5th (Fri)
- November 3rd (Sat)
- December 1st (Sat)

The price 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.

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
 Los Angeles, CA. 90027
 ATTN: Treasurer/Mt. Wilson

*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.



60 Inch group photo from April, 2017

Photo of the Month

Joe Phipps



“Indian Cove Campground 2 nights of star trails 1st night started too early with lots of cars. 1 1/2 hours 2nd night started at midnight till 4 am. Meteor top right.” *Joe Phipps*

Meet The New Members



Sissy Li

Bob Fang

Martha Gil

Kiel Bryant

Young Zhou

Joseph Di Giovanni

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.

NEW: You may listen to recorded meetings by logging in to our website at LAAS.org and clicking on the "Members Only" tab.

Before you try to access the "Members Only" information, you need to request login credentials from our Webmaster. On the left hand side of the page, scroll down and find "Login." Click "Login" for further information.

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 out-reach 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?

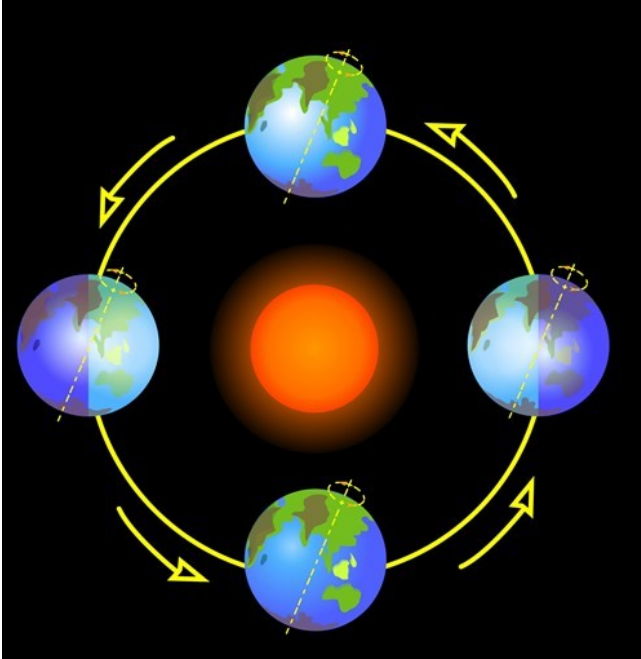
Please remember to renew your membership once you receive notice from the Club Secretary in your email inbox. Use this link to learn how to renew your membership: <https://fs30.formsite.com/LAAS/MemberRenewal/index.html>

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



A Guide To The Night Sky

By Tre Gibbs



It's June! That means time for our annual Summer Solstice, which marks the beginning of Summer in the Northern Hemisphere. Let's dive a little deeper into this amazing yet relatively common event...

Earth spins on it's axis - one complete turn takes approximately 24 hours, what we call "a day." Well, this axis just happens to be tilted, coincidentally about 24 degrees (... makes it easy to remember). Earth also orbits it's nearest star, the Sun. As the tilted Earth orbits the sun, there are times when the top half of Earth (the northern hemisphere) is leaning away from the Sun while the bottom half (the southern hemisphere) is leaning towards the sun. Conversely, there will be a time - 6 months later - when Earth will be in a place in it's orbit where the bottom half will be leaning away from the Sun, while the top half will be leaning towards the Sun.

June 21st at 3:07 am will be this time.

While most of us don't have the resources to travel long distances out into space and witness this event for ourselves, it definitely translates visually down here on Earth. For example, at dawn on June 21st, the Sun will rise at it's furthest northern point on the eastern horizon. During the day, the Sun's path will also be at it's northernmost path or highest in the sky, and at sunset, the Sun will set at it's most northern point on the western horizon. Keep in mind that the Sun has been gradually moving northward since The Winter Solstice and, after June 21st, will reverse direction, but this is a gradual transition. As the Sun gets closer to it's most northern point, it's movement begins to slow down and, from our vantage point, appears to stop or "stand still" before turning around and heading south again. The word "*solstice*" is derived from the Latin sol ("sun") and sistere ("to stand still"). From this point on, the days gradually begin to get shorter, becoming somewhat noticeable near the end of July, beginning of August.

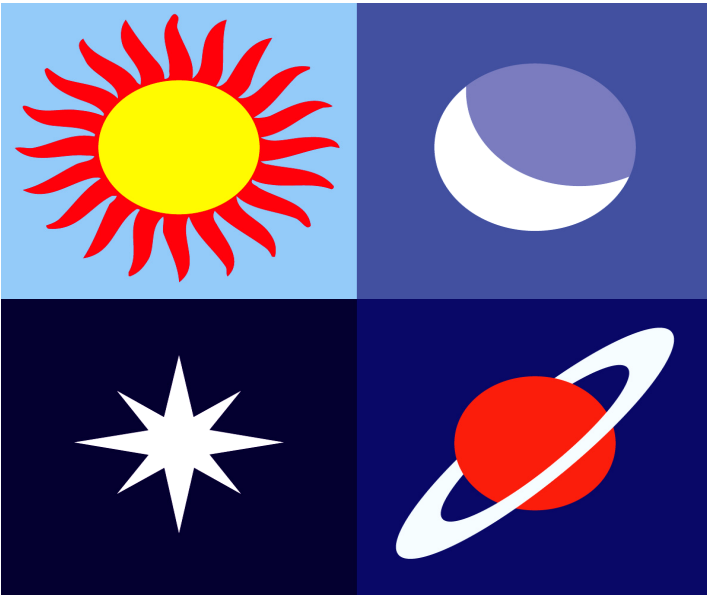
June's Full Moon is known as The Strawberry Moon, since this moon signaled the time when Algonquin tribes would gather ripening strawberries and other fruit. This year, the Full Strawberry Moon happens at 9:54 pm and June 27th. Another interesting happening is that the full moon rises and travels the sky with the mighty Saturn! Look for Saturn, appearing as a rather average looking, non-twinkling star just to the lower right of the full moon - on this night only.

Early in the month, on June 3rd, the moon will rise with the planet Mars (both in Capricornus The Sea Goat), but not until around 1:00 am. Jupiter (in Libra The Scales) is high in the southeast at sunset early on in the month, while Saturn (in Sagittarius) rises around 11:00 pm. Mid month - June 17th - try to find an extremely thin crescent moon to the left of planet Venus, both just above the western horizon. By month's end though, Jupiter will have moved westward and appears high in the south at sunset, Saturn rises around 9:00 pm and Mars appears above the eastern horizon just prior to midnight.

Have a great month - and take some time to pause and look up. There's an incredible show going on overhead each and every night.

Tre Gibbs

Almanac



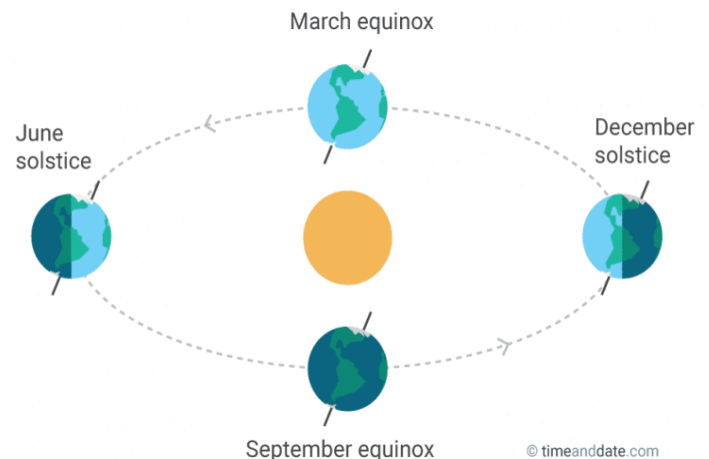
- **June 13 - New Moon.** The Moon will be located on the same side of the Earth as the Sun and will not be visible in the night sky. This phase occurs at 19:44 UTC. This is the best time of the month to observe faint objects such as galaxies and star clusters because there is no moonlight to interfere.

- **June 21 - June Solstice.** The June solstice occurs at 10:07 UTC. The North Pole of the earth will be tilted toward the Sun, which will have reached its northernmost position in the sky and will be directly over the Tropic of Cancer at 23.44 degrees north latitude. This is the first day of summer (summer solstice) in the Northern Hemisphere and the first day of winter (winter solstice) in the Southern Hemisphere.

- **June 27 - Saturn at Opposition.** The ringed planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. It will be brighter than any other time of the year and will be visible all night long. This is the best time to view and photograph Saturn and its moons. A medium-sized or larger telescope will allow you to see Saturn's rings and a few of its brightest moons.

- **June 28 - Full Moon.** 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 04:53 UTC. This full moon was known by early Native American tribes as the Full Strawberry Moon because it signaled the time of year to gather ripening fruit. It also coincides with the peak of the strawberry harvesting season. This moon has also been known as the Full Rose Moon and the Full Honey Moon.

Source: <http://www.seasky.org/astronomy/astronomy-calendar-2018.html>



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.

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



June 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Outreach East L.A.	2
3	4	5	6 Garvey Night Board Meeting	7	8	9 Family Night 60 Inch Night
10	11 General Meeting	12	13 Garvey Night	14	15	16 Dark Sky Night
17	18	19	20 Garvey Night	21	22	23 Public Star Party
24	25	26	27 Garvey Night	28	29	30

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/>



What Is the Asteroid Belt?

By Linda Hermans-Killiam

There are millions of pieces of rocky material left over from the formation of our solar system. These rocky chunks are called asteroids, and they can be found orbiting our Sun. Most asteroids are found between the orbits of Mars and Jupiter. They orbit the Sun in a doughnut-shaped region of space called the asteroid belt.

Asteroids come in many different sizes—from tiny rocks to giant boulders. Some can even be hundreds of miles across! Asteroids are mostly rocky, but some also have metals inside, such as iron and nickel. Almost all asteroids have irregular shapes. However, very large asteroids can have a rounder shape.

The asteroid belt is about as wide as the distance between Earth and the Sun. It's a big space, so the objects in the asteroid belt aren't very close together. That means there is plenty of room for spacecraft to safely pass through the belt. In fact, NASA has already sent several spacecraft through the asteroid belt!

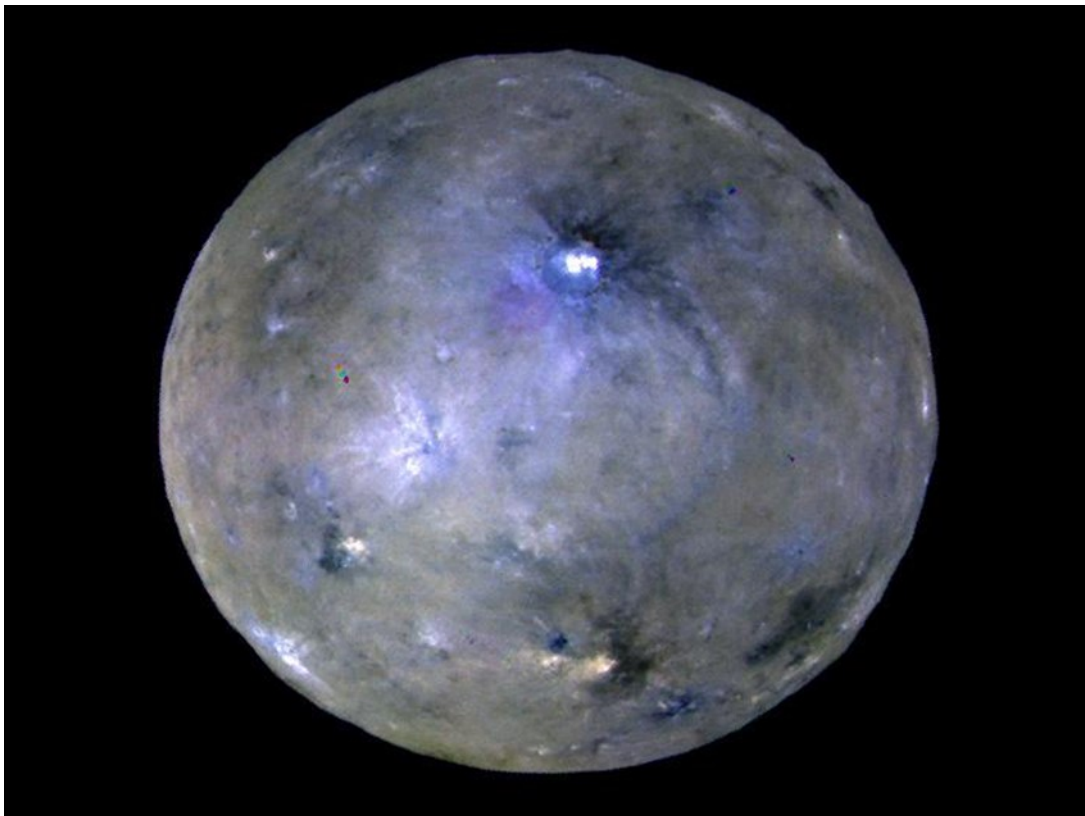
The total mass of objects in the asteroid belt is only about 4 percent the mass of our Moon. Half of this mass is from the four largest objects in the belt. These objects are named Ceres, Vesta, Pallas and Hygiea.

The dwarf planet Ceres is the largest object in the asteroid belt. However, Ceres is still pretty small. It is only about 587 miles across—only a quarter the diameter of Earth's moon. In 2015, NASA's Dawn mission mapped the surface of Ceres. From Dawn, we learned that the outermost layer of Ceres—called the crust—is made up of a mixture of rock and ice.

The Dawn spacecraft also visited the asteroid Vesta. Vesta is the second largest object in the asteroid belt. It is 329 miles across, and it is the brightest asteroid in the sky. Vesta is covered with light and dark patches, and lava once flowed on its surface.

The asteroid belt is filled with objects from the dawn of our solar system. Asteroids represent the building blocks of planets and moons, and studying them helps us learn about the early solar system.

For more information about asteroids, visit: <https://spaceplace.nasa.gov/asteroid>



Caption: This image captured by the Dawn spacecraft is an enhanced color view of Ceres, the largest object in the asteroid belt. Credit: NASA/JPL-Caltech/UCLA/MPS/DLR/IDA

The 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 beauties 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?>



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.

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

Raise Funds For the LAAS



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



Thank you for your donation!

Astronomy Magazine

Subscriptions

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.

Below, are some subscription links and suggestions for your convenience, from our friends at NASA's Night Sky Network:



[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.

Sky & Telescope Magazine



If your current subscription was obtained through your club, [click here for online renewal of your Sky & Telescope magazine subscription](#) at the club discount rate. You will be asked to enter your mailing label information. This information allows S&T to know that you originally subscribed through your club and can continue your subscription at the club discount rate.

If this is a new subscription or if you did not previously subscribe through your club or through the Night Sky Network, [click here for a NEW Sky & Telescope subscription at the club discount rate](#).



[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.



StarDate Magazine

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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Treasurer@laas.org

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Secretary@laas.org

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outreach@laas.org

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jcrochford@gmail.com

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Webmaster@laas.org

Club Communications: Andee Sherwood

Communications@laas.org

Mt. Wilson Coordinator: Darrell Dooley

mtwilsoncoordinator@laas.org

Bulletin Editor: Andee Sherwood

communications@laas.org



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:

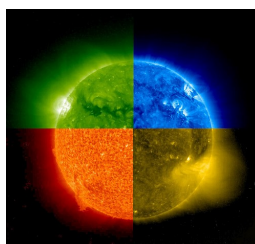
661-245-2106

Not answered, arrange time with caller.

Outgoing calls – Collect or calling card only.



Click on any of the images below to discover links to astronomy information, videos, photos, and at times, old sci-fi movies, too!



**The Los Angeles
Astronomical Society**
2800 E. Observatory Road
Los Angeles, CA 90027

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

Visit our web site at
www.LAAS.org

From:
The Los Angeles Astronomical Society (LAAS)
c/o Griffith Observatory
2800 E. Observatory Road
Los Angeles, CA. 90027

PLACE
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To: