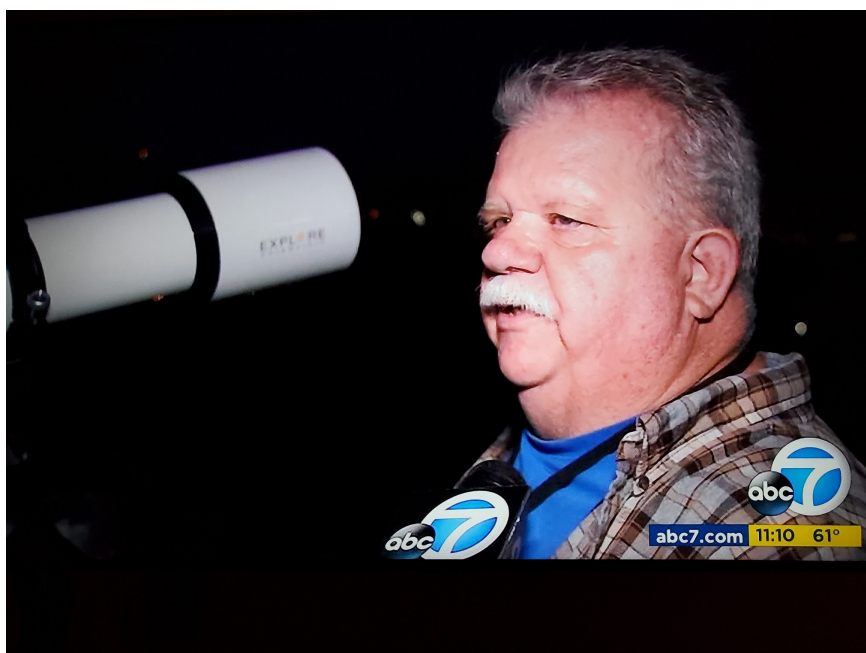




# THE LOS ANGELES ASTRONOMICAL SOCIETY

JUNE, 2022  
VOLUME 96, ISSUE 6

# THE BULLETIN



Club and Board member Joe Phipps on KABC news 11 pm., representing LAAS at Griffith Observatory on May 15. Joe estimates that about 450 people viewed the lunar eclipse on his 127 Explore Scientific refractor.

Screenshot captured and shared by Elizabeth Wong

## Upcoming Club Events

Board Meeting: June 8th  
General Meeting: June 13th  
**Family Night: June 18th**  
Dark Sky Night: June 25th

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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](mailto:communications@laas.org)

## Update Your Contact Information

Please send any contact info changes to the club secretary at

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

## Garvey Nights

The [Garvey Ranch Observatory](#) is open to the public on **Wednesday nights only** from 7 PM to 10 PM, weather permitting.

Masks are required inside the facilities.

# 60 and 100 Nights Schedule for 2022

## Mt. Wilson Observatory



### Session Schedule - 2022

The dates above are **all** scheduled on Saturday nights and are **all** half-night events.

May 28

June 18

July 23

Aug. 27

**Sept. 24 -This is the only 100 Inch session.**

Oct. 22

Nov. 19

### The Cost per person, per session:

60 Inch Night - \$65.00

100 Inch Night - \$145.00

There will be 20 people, per session.

### How to Make a Reservation?

Please contact Darrell Dooley **BEFORE** you pay for your reservation.

*Darrell is our Mt. Wilson Coordinator and the **ONLY** contact available.*

Darrell's Email Address:

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

*Darrell will answer all of your questions and concerns.*

Reserve your spot by paying by credit cards or PayPal using the following link:

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

Learn more about these incredible events by visiting Mt. Wilson Observatory's website:

<https://www.mtwilson.edu/60-telescope/>

<https://www.mtwilson.edu/100-telescope-observing/>

# Solstice Shadows

By Dave Prosper

**Solstices** mark the changing of seasons, occur twice a year, and feature the year's shortest and longest daylight hours - depending on your hemisphere. These extremes in the length of day and night make solstice days more noticeable to many observers than the subtle equality of day and night experienced during equinoxes. Solstices were some of our earliest astronomical observations, celebrated throughout history via many summer and winter celebrations.

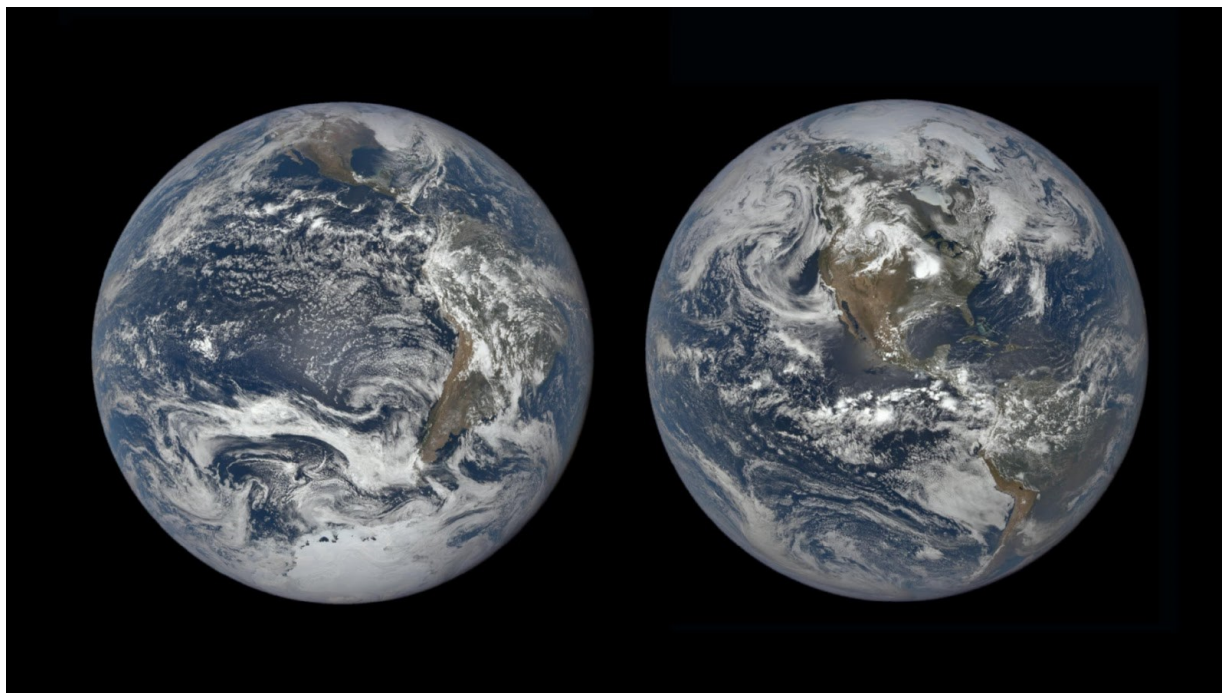
Solstices occur twice yearly, and in 2022 they arrive on June 21 at 5:13 am EDT (9:13 UTC), and December 21 at 4:48pm EST (21:48 UTC). The June solstice marks the moment when the Sun is at its northernmost position in relation to Earth's equator, and the December solstice marks its southernmost position. The summer solstice occurs on the day when the Sun reaches its highest point at solar noon for regions outside of the tropics, and those observers experience the longest amount of daylight for the year. Conversely, during the winter solstice, the Sun is at its lowest point at solar noon for the year and observers outside of the tropics experience the least amount of daylight- and the longest night – of the year. The June solstice marks the beginning of summer for folks in the Northern Hemisphere and winter for Southern Hemisphere folks, and in December the opposite is true, as a result of the tilt of Earth's axis of rotation. For example, this means that the Northern Hemisphere receives more direct light from the Sun than the Southern Hemisphere during the June solstice. Earth's tilt is enough that northern polar regions experience 24-hour sunlight during the June solstice, while southern polar regions experience 24-hour night, deep in Earth's shadow. That same tilt means that the Earth's polar regions also experience a reversal of light and shadow half a year later in December, with 24 hours of night in the north and 24 hours of daylight in the south. Depending on how close you are to the poles, these extreme lighting conditions can last for many months, their duration deepening the closer you are to the poles.

While solstice days are very noticeable to observers in mid to high latitudes, that's not the case for observers in the tropics - areas of Earth found between the Tropic of Cancer and the Tropic of Capricorn. *Instead, individuals experience two "zero shadow" days per year. On these days, with the sun directly overhead at solar noon, objects cast a minimal shadow compared to the rest of the year. If you want to see your own shadow at that moment, you have to jump! The exact date for zero shadow days depends on latitude; observers on the Tropic of Cancer (23.5° north of the equator) experience a zero shadow day on the June solstice, and observers on the Tropic of Capricorn (23.5° south of the equator) get their zero shadow day on December's solstice. Observers on the equator experience two zero shadow days, being exactly in between these two lines of latitude; equatorial zero shadow days fall on the March and September equinoxes.*

There is some serious science that can be done by carefully observing solstice shadows. In approximately 200 BC, Eratosthenes is said to have observed sunlight shining straight down the shaft of a well during high noon on the solstice, near the modern-day Egyptian city of Aswan. Inspired, he compared measurements of solstice shadows between that location and measurements taken north, in the city of Alexandria. By calculating the difference in the lengths of these shadows, along with the distance between the two cities, Eratosthenes calculated a rough early estimate for the circumference of Earth – and also provided further evidence that the Earth is a sphere!

Are you having difficulty visualizing solstice lighting and geometry? You can build a "Suntrack" model that helps demonstrate the path the Sun takes through the sky during the seasons; find instructions at [stanford.io/3FY4mBm](https://stanford.io/3FY4mBm). You can find more fun activities and resources like this model on NASA Wavelength: [science.nasa.gov/learners/wavelength](https://science.nasa.gov/learners/wavelength). And of course, discover the latest NASA science at [nasa.gov](https://nasa.gov).

*Continued on following page*



*These images from NASA's DSCOVR mission shows the Sun-facing side of Earth during the December 2018 solstice (left) and June 2019 solstice (right). Notice how much of each hemisphere is visible in each photo; December's solstice heavily favors the Southern Hemisphere and shows all of South America and much of Antarctica and the South Pole, but only some of North America. June's solstice, in contrast, heavily favors the Northern Hemisphere and shows the North Pole and the entirety of North America, but only some of South America.*

*Credit: NASA/DSCOVR EPIC*

Source: <https://www.nasa.gov/image-feature/goddard/2021/summer-solstice-in-the-northern-hemisphere>



*A presenter from the San Antonio Astronomy Club in Puerto Rico demonstrating some Earth-Sun geometry to a group during a "Zero Shadow Day" event. As Puerto Rico lies a few degrees south of the Tropic of Cancer, their two zero shadow days arrive just a few weeks before and after the June solstice. Globes are a handy and practical way to help visualize solstices and equinoxes for large outdoor groups, especially outdoors during sunny days!*

*Credit & Source: Juan Velázquez / San Antonio Astronomy Club*

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.gov](https://nightsky.jpl.nasa.gov) to find local clubs, events, and more!



# Another Look

## By David Phelps

June 1 moon 2 days old, New moon June 29, full moon June 14

### Strawberry Moon

Other native names are Berries Ripen Moon, Green Corn Moon, and Hot Moon. The Celtic names are Mead Moon, Horse Moon, Dyan Moon, and Rose Moon. Other English names are Flower Moon and Planting Moon

I went with a troop of Boy Scouts to Calico Ghost Town some years ago back when it was owned by Knott's Berry Farm. We went to explore the town, have a camp-out nearby and work on their Astronomy Merit Badge. What I remember most about the night was Polaris. The sky was so clear that its 9<sup>th</sup> magnitude companion was brilliant as were the ring of stars surrounding our North Star. The boys earned their badge successfully and I had a great time showing off bright double stars, nebula and galaxies.

Polaris has as long a history as any object in the sky. It has history in Greece, Mesopotamia, India, Southeast Asia, Australia, New Zealand and of course all over the Pacific Islands.

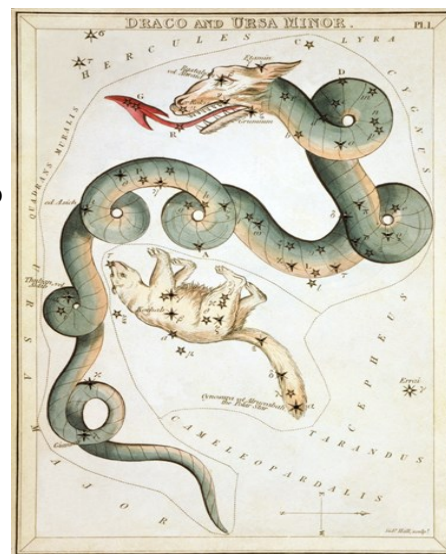
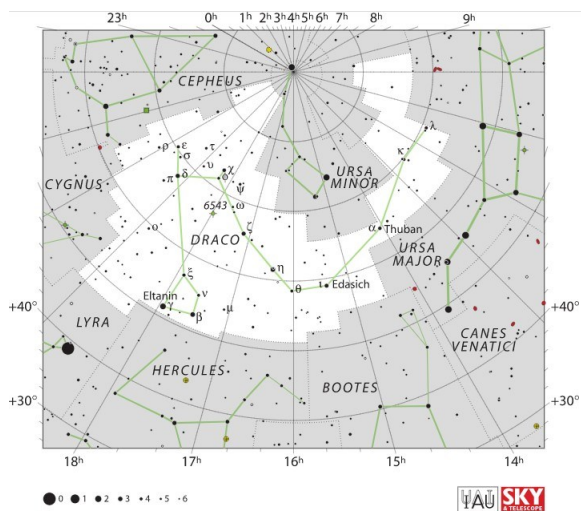
Polaris as a name was coined in the Renaissance but our modern version of the constellation of Ursa Minor was first included in Ptolemy's *Almagest*.

Scientifically speaking, Polaris is a Cepheid variable, near it, Beta  $\beta$  Ursa Minoris, named Kochab is an orange giant that has fallen off the main sequence. It also has a planet orbiting it. Three other stars in Ursa Minor also have planets.

There are not too many deep sky objects in Ursa Minor. The only one I've looked for is NGC 6217, because it's listed as a starburst galaxy and I was looking for those bright knots in the spiral arms.

Wrapping around Ursa Minor is Draco. There are three main stories about Draco that have come down through the years. In one, the Greeks have him fighting the gods and losing. Athena throws him into the sky in retaliation and he ends up twisting around himself.

Eratosthenes depicted Draco as Ladon, the dragon the goddess Hera tasked with guarding the golden apples of the Hesperides, who are nymphs of the evening or maybe sunset. Hercules defeated Ladon when he went to steal the apples.



One card from *Urania's Mirror* - Wikipedia

Hera honored his service by placing him into the heavens after Hercules killed him.

Tangentially, I have a theory. Suppose the golden apples were oranges, maybe a little easier to grow in the climate around Turkey at that time. Imagine Hercules as those ancient mariners who skipped along the islands in the Aegean exploring the world and investigating new lands and ports-a-call. They planned to steal orange trees and then return back home in one piece. Perhaps Draco is the Bosphorus and the Dardanelles, two extremely twisted and narrow waterways guarding Turkey on the north and the south. Be they thieves, smugglers or traders, it was ancient free enterprise at its finest.

Although the Arabs knew the Greeks description of Draco as a serpent, the Arabic theme for this constellation was a herd of camels. The stars Beta  $\beta$  (Alwaid), Gamma  $\gamma$  (Etamin), Nu  $\nu$  (Kuma and Xi  $\chi$  (Grumium) in the Head of the Dragon represent four mother camels protecting a baby camel from the attack of two hyenas, (Eta  $\eta$  and Zeta  $\zeta$  (Nodus 1). The nomads camp located nearby (the three unnamed stars in the neck of the Dragon: Epsilon  $\epsilon$ , Tau  $\tau$ , and Sigma  $\sigma$ ). **Nodus 1 – Constellations of Word**

There a couple of interesting objects in Draco. Right next to Omega  $\omega$  is Gliese 687. Gliese was a German astronomer whose first catalog was of nearby stars within 20 parsecs. There have been two subsequent editions since extending the distance out to 25 parsecs. G687 is small, red and 9<sup>th</sup> magnitude. It seems to be sitting right on top of Omega  $\omega$ . If you center  $\Omega$  in your Telrad, G687 will be at about PA 180 near the inner ring. G 687 also has two planets that are Uranus size (?) that you won't see. Close to G687 is the North Ecliptic Pole. The NEP is of interest because NGC 6543, the Cat's Eye nebula is sitting almost right on top of it. Some awful spectacular images of the Cat's Eye have been made but I have only seen a bluish-greenish blob. They tell me the core is 20" across, but maybe the right filtering on a bigger telescope will bring out some of the outer shell.

[https://upload.wikimedia.org/wikipedia/commons/b/b6/Draco\\_IAU.svg](https://upload.wikimedia.org/wikipedia/commons/b/b6/Draco_IAU.svg)

A last image to look at in Draco this month is up by M81/M82. NGC 3147 is a nice 10<sup>th</sup> magnitude face on spiral about 4' across. It is cataloged as a Seyfert galaxy with an active nucleus. I don't remember any details about it but the pictures show me a bright, condensed nucleus. Any takers? If you click on the hyperlink above, you will get a larger chart of Draco.

"The Pyramids on the Giza Plateau were designed to have one side facing north, with an entrance passage geometrically aligned so that Thuban or Draconis would be visible at night. At the time the Great Pyramid was built, one of the shafts aimed toward the star that was then closest to the north celestial pole. The other aimed at the Belt of Orion, one of the brightest and most impressive constellations. The Egyptians described these stars as "imperishable" or "undying." The pharaoh of the time expected that when he died, he would join not only with the Sun, but with Thuban as well - maintaining order in the celestial realm, just as he had on Earth."

<https://www.gshpa.org/content/dam/girlscouts-gshpa/documents/girl-scouts-at-home/constellation-discovery/Draco.pdf>

"The Pyramids on the Giza Plateau were designed to have one side facing north, with an entrance passage geometrically aligned so that Thuban or Draconis would be visible at night. At the time the Great Pyramid was built, one of the shafts aimed toward the star that was then closest to the north celestial pole. The other aimed at the Belt of Orion, one of the brightest and most impressive constellations.

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Not all scientists and archaeologists agree with that last passage. It does seem a little complex. For an alternative discussion click on the hyperlink to an article from Astronomy Magazine: "**Are the Egyptian pyramids aligned with the stars? - Astronomy ...**" <https://astronomy.com/news/2021/02/are-the-egyptian-pyramids-aligned-with-the-stars>

Back in the second century, Ptolemy compiled his Almagest of 48 constellations. Ptolemy lived in Alexandria, about 31 degrees north latitude, just a little lower than Southern California. How did he compile all the stars of and name the constellation of the Centaur? Was he far enough south? Still the Almagest was the Astronomy reference up until and past the time of Copernicus. (**Kentauren\_1602\_-\_Skoklosters\_slott\_-\_102438.gif (1200x996) (universetoday.com)**)



*Centaurus, as depicted on a globe created by Gullielmus Janssonius Blaeu (1602), photographed at Skokloster Castle in Stockholm, Sweden. Credit: Wikipedia Commons/Erik Lernerstål Thank you universetoday.com*

Sometime, back in the 80's during early spring around midnight, I took my binoculars to Black Star Canyon road to check out the seeing. I had forever been searching the Thomas Guides for back roads that might lead me to close-in observing sites. Considering I was in the middle of the Orange County light dome, the seeing was pretty good and the sky darkness also pretty okay. I remember this evening because it got so cold that the dew froze on my windshield but mostly because I saw Omega Centauri and Centaurus A in the same field. My binoculars are an old pair of Tasco wide field 7x50's that I picked up back in the 60's. What impressed me most about them was that I could see the entire constellation of Lyra in my eyepiece. So, now its your turn.

Cataloged by Bayer as a star and visible to us at 4<sup>th</sup> magnitude, Omega is claimed by Burnham and echoed by Herschel and others to be the finest Globular Cluster in the sky. It has been written about and studied extensively with descriptions of its large population of RR Lyrae variables used to determine its distance and its own H-R Diagram to map its stellar population. Omega is low to the southern horizon for us rising to about 10 degrees at its highest. Near the end of June, it will transit between 9 and 10 pm.

About 5 degrees north of Omega and in the same binocular field is 6<sup>th</sup> magnitude Centaurus A, disrespectfully called the Hamburger Galaxy, also number 77 on Patrick's Caldwell list and listed as NGC 5128.

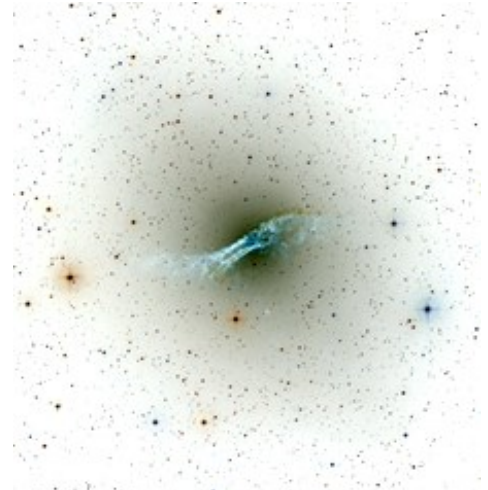
Lots has been written about it but most recently it seem that its an elliptical that has undergone or is undergoing a collision with another galaxy. Details aside it is a magnificent object to observe and along with its companion are challengers for nearest spectacular celestial companions.

Centaurus is no slug in the galaxy department either. Abell 3526, the Centaurus galaxy cluster has hundreds of galaxies of all types and sizes. The brightest member of the cluster, I think, is NGC 4696 a 11<sup>th</sup> magnitude but if you want a bit of a challenge and maybe a telescope with a few extra inches look for NGC 4622, a 12-13<sup>th</sup> magnitude RING galaxy not too distant from N4696. It is round at 2'x2'; now that you know what to look for, perhaps you will glimpse the ring. Check out [APOD](#), they have terrific images.

I've never been to the Winter Star Party on the Florida Keys, nor to Cabo San Lucas in Baja California. However, if I ever get down there, the first thing I will look at is the Southern Cross. The first thing I will point my telescope at is Alpha  $\alpha$  Centauri. Alpha is, as you know, a multiple star system that is closest to us. Alpha's name is Rigel Kentaurus meaning foot of hoof of the Centaur. Alpha Centauri B's name is Toliman. Derived from the Arabic the meaning is "the two male Ostriches" This makes a little more sense when we realize that the original name for both stars was Toliman, a very closely matched small telescopic double, Rigel Kentaurus came later. The third member, as you know, is Proxima and is determined to be the closest to us of the three stars. A, B, and C Centauri are gravitationally bound. At 0 and 1 magnitude A and B are about 8' of arc apart per Burnham so easily split. Proxima, however, is 2 degrees from the two and 11<sup>th</sup> magnitude, easy to spot in your 12 inch but harder to identify.

As long as we're looking at doubles from the tip of Baja, lets look at Beta  $\beta$  Centauri, Hadar. Hadar has a multitude of meanings from knee to spear carrier. It forms a largish double with Alpha some 4.5 degrees distant. Hadar is also a multiple star system whose 4<sup>th</sup> magnitude companion is probably too close for anything but professional instruments at this moment in its orbit. Of historical significance, Alpha and Beta were instrumental as navigation stars to the south pacific islanders whose ocean travel between islands in dugout canoes is the stuff of legends.

*APOD: 2022 March 17 – Centaurus (nasa.gov) Image Credit & Copyright: David Alemazkour*



Bootes is an ancient constellation with mythic references to the Greek gods Zeus and Callisto to the more modern interpretation of a plowman. His nearness to Ursa Major adds to his story. In England and many other countries, the Big Dipper is not a bear but a plow. Ergo, the Plowman and the Plow.

Bootes as depicted in Uranis's Mirror a set of constellation cards published in London c.1825. In his left hand he holds his hunting dogs, Canes Venatici. Below them is the constellation Coma Berenices. Above the head of Bootes is Quadrans Muralis, now obsolete, but which lives on as the name of the early January Quadratic meteor shower. Mons Maenalus can be seen at his feet. Copied from Wikipedia.org



<https://en.wikipedia.org/wiki/Bootes>.

The Greek story about Bootes is not only a little gory but complicated by alternative references. In brief, Callisto was the mother of Arcas, the ancient name for the constellation. Arcas was famed as a hunter, his mother, Callisto, was changed into a bear by one of the gods, either Hera or Artemis, and there we have a hunter holding a spear chasing a bear around the heavens for eternity. There are references that go as far back as Mesopotamia depicting Bootes as a hunter. Ptolemy settled on a Herdsman in his Almagest using the name Bootes, whose meaning is derived from older words meaning Herdsman or Plowman. The stars in Bootes lend flavor to the legend. Arcturus is old, its name going back to 700 BCE. Originally they think it meant Guardian, the bear added later to the story. The next star up to the left is 2<sup>nd</sup> magnitude Izar, Epsilon  $\epsilon$  Bootis. Epsilon is a double star system with some interesting science. It is also one of the finest telescopic binaries in the sky. The separate magnitudes are 2<sup>nd</sup> and 5<sup>th</sup> and they are separated by 3" of arc. Epsilon A is bright orange'ish or yellow'ish and its companion blue, though the colors are subtle. Back in the 19<sup>th</sup> century Friedrich Struve named Izar "Pulcherrima", Latin for "the loveliest". Currently we translate Izar as "guardian" though it is likely that its name is also derived from the same root as Mizar in Ursa Major, meaning the thigh, loin or rider.

Up at the right hand of Bootes is the star Alkalurops, mu  $\mu$  Bootis. Alkalurops' meaning is derived from shepherd's crook or staff, though in the *Urania's Mirror* image above it is the hand holding the leashes of Canis Venatici. Mu is a double double system bright enough to see but narrow enough to need some mirror size to split.

Moving away from doubles, NGC 5248 is a cool galaxy located about as far south as you can get and still be in Bootes; very near Virgo. It's a 6' oval, 10<sup>th</sup> but nearly 11<sup>th</sup> magnitude and considered to be a member of the Virgo Cluster. I've seen terrific images of it but I don't think I've ever searched for it. NGC 5248 is also Caldwell 45.

NGC 5466 is also a very interesting character. It is a 10<sup>th</sup> magnitude globular of class XII, which means it has no apparent central condensation. NGC 5466 is largish at 11', somewhat larger than the apparent size of the crater Tycho at 7'. Still, it will be a little bit of a challenge because the light of the stars is so spread out.

If we move almost as far north into Bootes as we can, we will find our last faint and fuzzy. I chose NGC 5820 because of its extreme nature, much like NGC 5466. NGC 5820 is a class S0 lenticular galaxy. Meaning, I am told, that it is half way from and elliptical to a spiral galaxy. It appears edge on with no arms or dark band. It'll be tough, Wikipedia gives its magnitude at 11.98. But, as a bonus, you may be able to pick out NGC 5821 in the same field.

Dark Skies

Dave Phelps



# Images of the Lunar Eclipse - May 15 -16, 2022

By Ray Blumhorst



Here are a few photos of the total lunar eclipse from Sunday, May 15, 2022, the Super Flower Blood Moon. The moon was very low in the SE sky around 8:30 p.m. when totality began. With the Earth blocking the light of the Sun from the full moon, the dim red orb of the total lunar eclipse hung eerily in the mostly cloudless, SoCal night sky for about an hour. Including the partial lunar eclipse phase, the show went on for hours.

Photo Credit: Ray Blumhorst

# Monthly Sky Report

## By Dave Nakamoto

During June, the sun moves from Leo the Lion and then spends most of the month in Virgo the Maiden. On the 1<sup>st</sup>, the sun rises at 5:43 a.m., PDT, and sets at 8:00 p.m., PDT. On the 30<sup>th</sup> sunrise is at 5:45 a.m., PDT, and sunset is at 8:09 p.m., PDT. The summer solstice occurs on the 21<sup>st</sup>; the night is only nine hours 32 minutes long.

The moon is at first quarter on the 7<sup>th</sup>, full on the 14<sup>th</sup>, last quarter on the 20<sup>th</sup>, and new on the 28<sup>th</sup>.

This month all the planets are in the morning sky.

Mercury rises at 5:04 a.m., PDT on the 1<sup>st</sup>, and is nine percent illuminated and 11 arcseconds wide, a tough object to see even with a telescope. By the 30<sup>th</sup>, Mercury rises at 4:30 a.m., PDT, and is 72-percent illuminated but has shrunk to only six arcseconds as it recedes away from earth.

On the 1<sup>st</sup>, Venus rises at 3:49 a.m., PDT, with its disk 78% illuminated and 14 arcseconds wide. By the 30<sup>th</sup>, Venus rises at 3:44 a.m., PDT, with its disk 86% illuminated and 12 arcseconds wide, as it decreases in size and increases in the portion that is illuminated as it moves to the far side of the sun. The disk can be seen in binoculars or a small telescope.

Mars rises at 2:30 a.m., PDT, on the 1<sup>st</sup>, and at 1:32 a.m. PDT, on the 30<sup>th</sup>. Mars presents a disk only seven arcseconds, so nothing will be seen in binoculars or a small telescope. Mar starts June one degree east of Jupiter and moves further east each night.

Jupiter rises at 2:23 a.m., PDT, o the 1<sup>st</sup>, and at 12:39 a.m., PDT, on the 30<sup>th</sup>. Features on the disk, as well as the four Galilean moons are visible in a small telescope.

Saturn rises at 12:40 a.m., PDT, on the 1<sup>st</sup>, and at 10:44 p.m., PDT, on the 30<sup>th</sup>. Features on the disk, the rings, and the large moon Titan are visible in a small telescope.

Uranus rises at 4:18 a.m., PDT, on the 1<sup>st</sup>, and at 2:28 a.m., PDT, on the 30<sup>th</sup>. On the 15<sup>th</sup>, Uranus is at Right Ascension 2<sup>h</sup> 57<sup>m</sup> 34<sup>s</sup> and a Declination of +16° 29' 47". Uranus is only 3.4 arcseconds wide, so a large telescope and magnifications of 150x are needed to see its disk.

Neptune rises at 2:01 a.m., PDT, on the 1<sup>st</sup>, and at 12:08 a.m., PDT, on the 30<sup>th</sup>. Neptune is at Right Ascension 23<sup>h</sup> 42<sup>m</sup> 50<sup>s</sup> and a Declination of -3° 1' 31" on the 15<sup>th</sup>. It is both faint, magnitude +8, and small at 3.2 arcseconds wide, so a large telescope and a magnification of at least 150x are needed to see its disk.

There is a possibility that a comet will be visible in the evening sky, but as is always the case with comets, predicting how bright it will be is fraught with lots of uncertainty. The comet is designated, and has the name of, C/2017 K2 ( PanSTARRS )

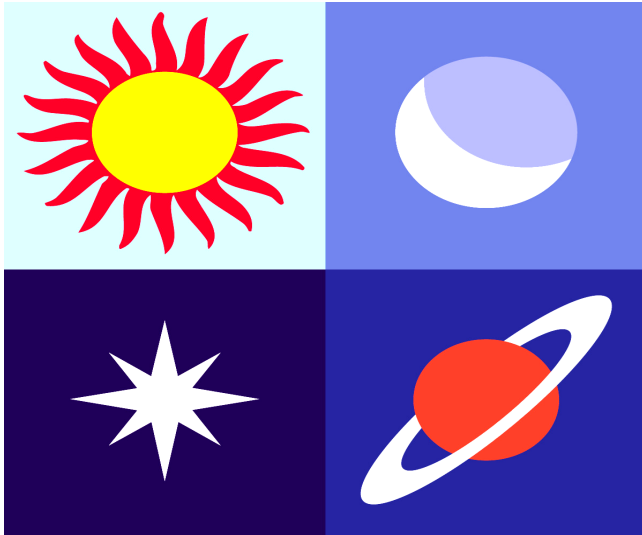
Its coordinates during the month are

Date	Rise Time	Right Ascension	Declination	Magnitude
June 1	8:07 p.m.	18 <sup>h</sup> 21 <sup>m</sup> 57 <sup>s</sup>	9 <sup>d</sup> 29 <sup>m</sup> 42 <sup>s</sup>	+6
June 15	8:07 p.m.	17 <sup>h</sup> 58 <sup>m</sup> 26 <sup>s</sup>	6 <sup>d</sup> 45 <sup>m</sup> 41 <sup>s</sup>	+6
June 30	5:40 p.m.	17 <sup>h</sup> 28 <sup>m</sup> 11 <sup>s</sup>	2 <sup>d</sup> 15 <sup>m</sup> 53 <sup>s</sup>	+8

*David Nakamoto has been observing the heavens through various scopes since he was in the 5<sup>th</sup> grade. You can contact Dave by email at:*

[dinakamoto@hotmail.com](mailto:dinakamoto@hotmail.com).





## Almanac

**June 14 - 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 11:52 UTC. This full moon was known by early Native American tribes as the 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 Rose Moon and the Honey Moon. This is also the first of three supermoons for 2022. The Moon will be near its closest approach to the Earth and may look slightly larger and brighter than usual.

**June 16 - Mercury at Greatest Western Elongation.** The planet Mercury reaches greatest western elongation of 23.2 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 morning sky. Look for the planet low in the eastern sky just before sunrise.



Want to know what objects will be in tonight's sky in Los Angeles?

<https://www.timeanddate.com/astronomy/night/usa/los-angeles>

**June 21 - June Solstice.** The June solstice occurs at 09:05 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 29 - 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 02:53 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.

Source:

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

### Free Online Astronomy Education Videos

The LAAS has many beginners in the club. A fun way to gain basic astronomy knowledge is use some of the many free resources found online. There are videos, lectures, and even classes to be discovered which you can enjoy at home.

Here are a few links which may be of interest to you.

1. [Astronomy 101](#)
2. [Lectureonline](#)
3. [FreeSchool](#)—Learn about the Constellations
4. [EyesOnTheSky](#)
5. [UALR College of Science](#)

# June 2022

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1 Garvey Nights	2	3 Outreach North Hills	4
5	6	7	8 Garvey Nights & Board Meeting	9	10	11
12	13 General Meeting	14	15 Garvey Nights	16	17	18 Family Night & 60 Inch Night
19	20	21	22 Garvey Nights	23	24	25 Dark Sky Night & Outreach Santa Ana
26 Outreach Santa Ana	27	28	29 Garvey Nights	30		

# Meet The New Members

## Welcome to the LAAS!



Jennifer Dube	Keith Armstrong
Casey Puki Green and Nick Green	Vahe Peroomian
Leonard Allen	Dasean Volk
Roman Tolesnikov	Christine Arnau and Family
Vivek Kaliraman	Jamir Soberanis
Christopher Mahan	

## 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](mailto: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 always welcome 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](mailto: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](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 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/>



**Disclaimer:** The Los Angeles Astronomical Society, Inc. is a public charity, as defined by Internal Revenue Code Section 501(c)(3) and all contributions to the Society are deductible for Federal and State Income tax purposes. **The Society does not endorse Amazon.com or any of its business practices**, but we are registered with Amazon Smile and will accept contributions from that program. If you are an Amazon customer and would like to have part of the proceeds from your purchase returned to the Society as a contribution, please go to <https://smile.amazon.com/> when you are shopping on Amazon and select Los Angeles Astronomical Society under the caption: "Or pick your own charitable organization." A percentage of your purchases will be donated to the Society to fund its educational and outreach programs.

John O'Bryan, Jr.

## 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.



## Club Contact Information

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mtwilsoncoordinator@laas.org

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hurst.alecia@gmail.com

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Secretary: Spencer Soohoo

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Club Communications: Andee Sherwood

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Mt. Wilson Coordinator: Darrell Dooley

mtwilsoncoordinator@laas.org

Bulletin Editor: Andee Sherwood

communications@laas.org



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

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

## Club Contacts

### Club Phone Numbers

LAAS Message Phone:

213- 673-7355 (Checked daily)

Griffith Observatory:

213-473-0800

Sky Report:

213-473-0880



Follow us on social media by clicking on one of the icons below:

