
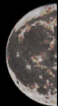

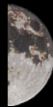


February Skies Over the Pinnacles

February 2026

By Jeff Hutton

February's Four Phases of the Moon

February 1	Full Moon	
February 9	Last Quarter	
February 17	New Moon	
February 24	First Quarter	

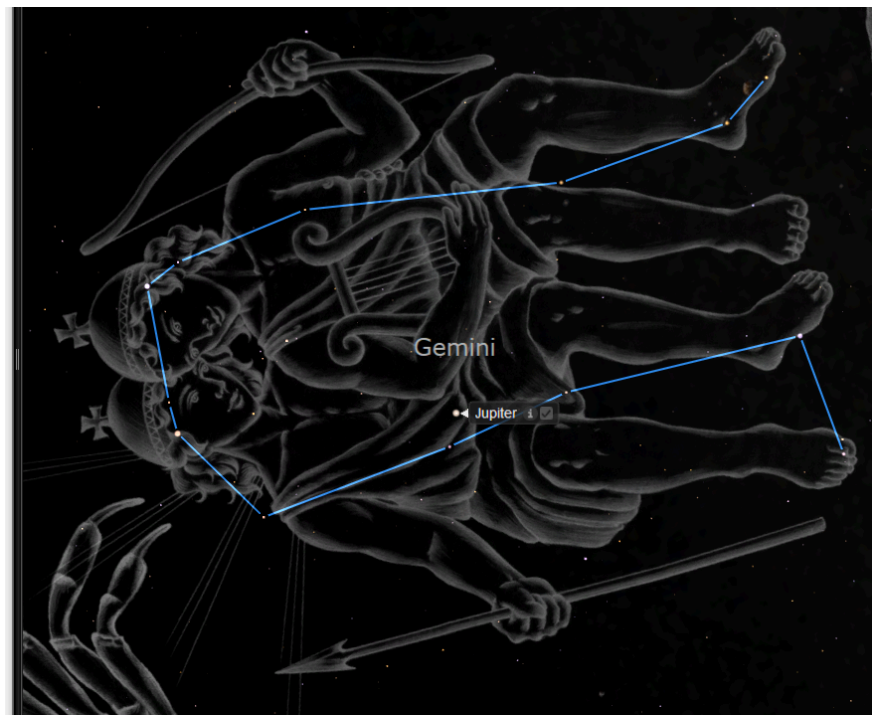
What Is Astronomy?

When we see something that we don't understand, most of us want to know more about it. The night sky looks like a great inverted bowl above our heads that extends in all directions to the horizon. It is full of little twinkling dots of light, at least when we find ourselves away from city lights. In ancient times the stars might have been comforting in the dark of night. During the first 99% of the age of humanity, before the scientific age, we made up stories about the stars.

Stories about what? Most of the time these stories were projections about happenings and concerns that we had down here on Earth. Some of these stories had practical value. At a time before calendars and clocks we learned to mark the passage of time (at least at night) by noting the position of the collection of stars now often called the "Big Dipper" as it swung around that star we now call Polaris. The Sun's position served as the daytime clock. We noticed that recognizable groups of stars were visible only at certain seasons of the year. This knowledge was useful, for we received prompts from the night sky to tell us when to plant crops in the spring or when deadly winter was on its way.

We are good at recognizing patterns. For instance, the pattern that makes the constellation known as Bootes, the herdsman, is seen rising above the eastern horizon. It is time to plant our spring crops. There were also 'stars' that didn't seem to remain glued in place over our heads. A keen observer might note that the motions of the wandering stars didn't really affect our lives, so these wanderers were a curiosity but not much else. The wanderers were always seen in or between certain star patterns that were later called the constellations of the Zodiac.

During the next clear evening, go outside and look high in the northeast and behold gleaming Jupiter, easily the brightest object visible in the night sky. Currently, Jupiter appears in front of the collection of stars we call the constellation, Gemini.



Someone might wonder what happened the last time this wanderer appeared 'in' the constellation Gemini? That did happen during the summer of 2013. A quick internet check for news events from that time reveal that the Egyptian military deposed their President, Mohamed Morsi. So, because Jupiter is again 'in' Gemini, might a president be deposed? As much as one might hope for that, Jupiter would not have anything to do with it. Believing that Jupiter caused the deposing of a president represents the basis for the pseudoscience (fake science) of **astrology**.

We are good at perceiving patterns. But sometimes those patterns are not there, except in our imagination.

The term, 'astronomy' is a little old fashioned when we use it to describe those folks who are attempting to answer the deepest questions involving the Cosmos. Questions include, "How old is the universe?" "What is the nature of matter?" "How do stars make the elements?" "What is the ultimate fate of the Universe?" These are questions addressed by a speciality of the science of physics. People who study these and many more deep questions are called **astrophysicists**. An **astronomer** might be described in more traditional terms as one who carefully plots the exact positions of the stars and describes various celestial objects, such as the location of planets, stars, multiple star systems, star clusters, nebulae and galaxies. Astrophysicists are mostly employed by research institutions, like colleges and universities. Astronomers may be paid as teachers and planetarium directors and work for smaller colleges

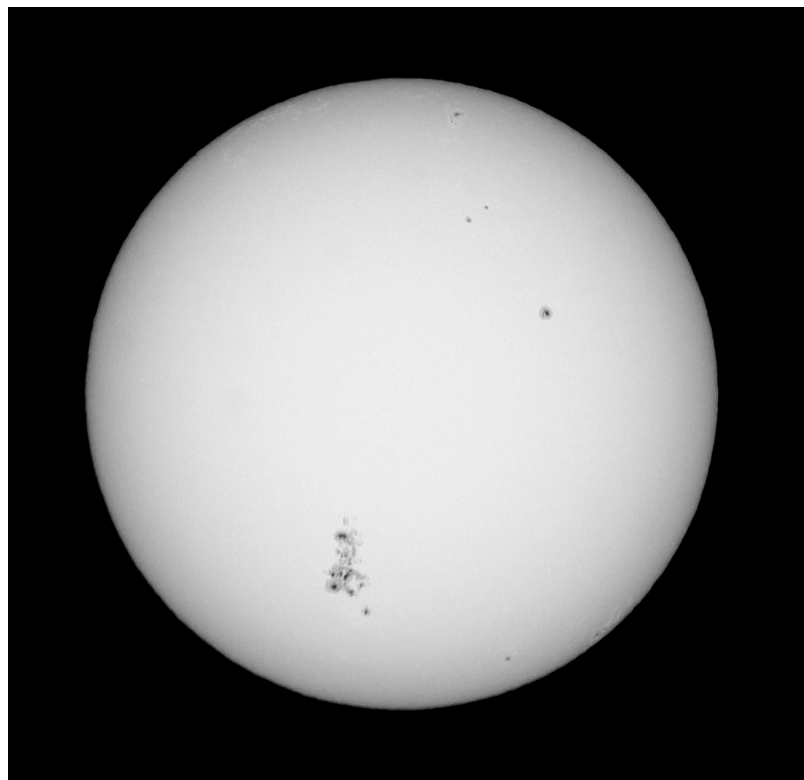
and cities who have a planetarium or public observatory. There are also amateur astronomers, like myself.



The new Vera Rubin Observatory in the high desert of Chili, Courtesy NASA

Amateur astronomers love the cosmos for many reasons. Here are some of them. Unless otherwise noted, all original images were taken by the author.

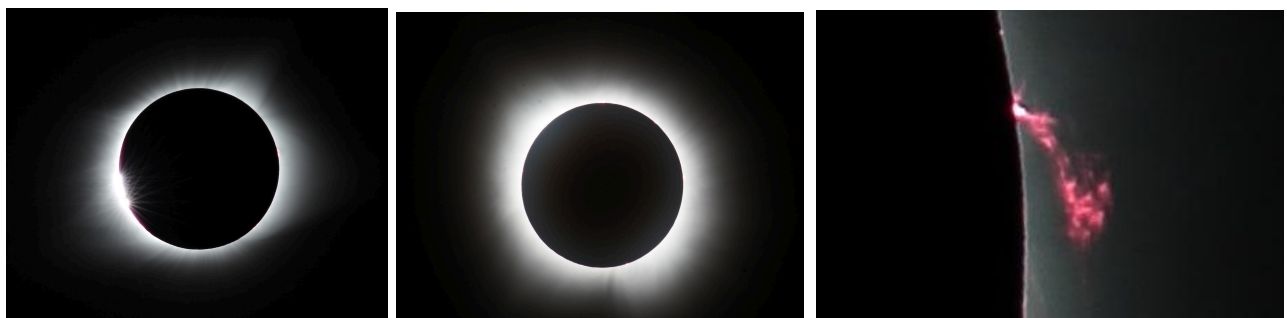
Not all amateur astronomers are like vampires, coming out only at night. One of my oldest friends became fascinated by the Sun. He started by placing a safe and approved filter over the front of his telescope to take pictures of the sunspots like this one..



Later he acquired a special filter that shows only a tiny red sliver of the Sun's spectrum and began taking pictures like this one. With this filter he can take images of solar prominences like this one seen along the Sun's edge, or limb.



The Sun is ever changing and a prominence like this one can explode into space and disappear in minutes! Prominences like this one are the source of the Aurora Borealis in the northern hemisphere. Speaking of the Sun, many of us astronomers (amateur and professional) and astrophysicists make time to travel great distances on earth to view and record eclipses of the Sun by the Moon.

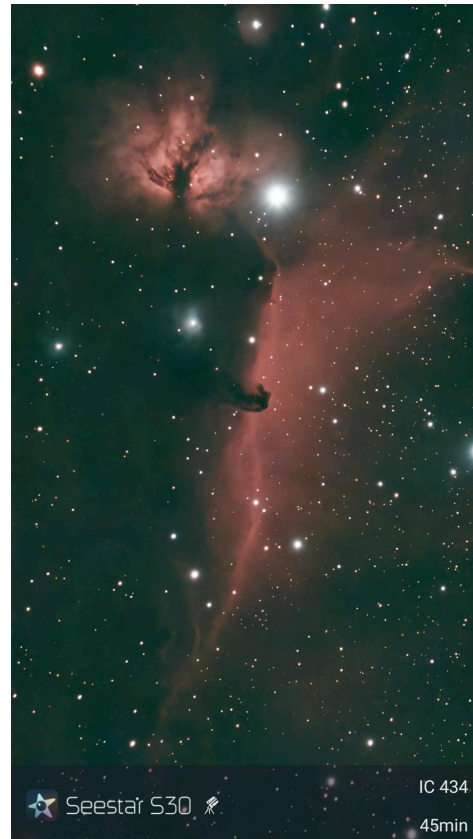
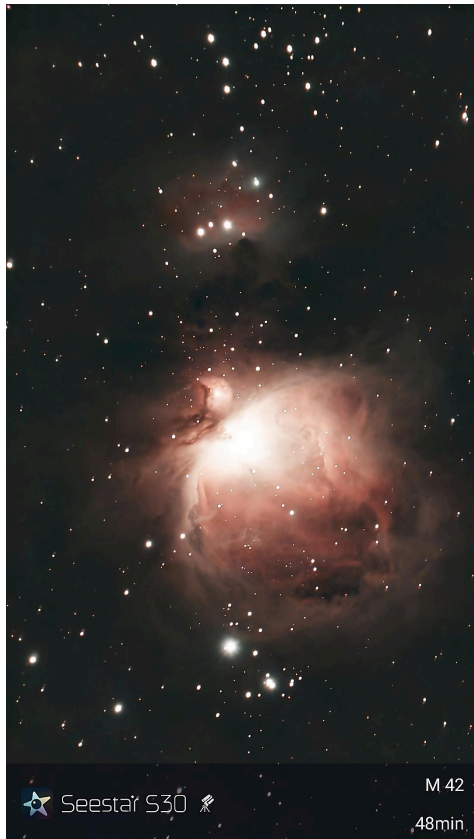


The image at left, taken in 2017 is during totality, when the moon has totally covered the bright disc of the sun. The image in the middle was taken during the solar eclipse of 2024 and the image at right is a closeup of the limb of the Sun showing a large prominence that is many times larger than the Earth.

There are lots of things for us "night stalkers" to enjoy. On March 3, 2026, we can enjoy a total eclipse of the Moon. That's when the moon's orbit takes it through the shadow of the earth. Below is an image of the Moon mostly covered by the shadow of the earth.



Technological advances have made it possible for amateur astronomers to take beautiful images of astronomical objects in deep space. Here are a few I took with an robotic imager, controlled from my smartphone. The cost of this device is about the same as a new beginner's telescope.



Both of these objects are in the constellation Orion and show regions of star formation.

Comets and meteors also have their fans. Comets are chunks of “dirty ice” that sometimes receive a gravitational tug from a passing planet and hurtle towards the Sun, mostly sprouting beautiful tails like last year's Comet Lemmon. I took this with the same device as the objects in Orion.



We enjoy meteors, usually during an annual meteor shower, in a more low-tech way. Most meteors are the result of 'sand' left behind by passing comets. Spread a blanket on the ground, lie down and wait for one of these beauties to streak across the sky!



This Geminid meteor was seen with the constellation, Orion, to the right. You can catch meteors with any camera that can make an exposure of at least 30 seconds.

Speaking of cameras, you can take images of the Moon with a decent telescope and your smartphone camera, like this one.



Taking images of celestial objects isn't all amateur astronomers do. My special interest is in doing outreach. Watch this space for future announcements about public star parties. The next one will be at Legacy Grove Park in Winchester, KY. on March 21 with a rain date of March 28. Telescopes for viewing the night sky will be provided by the Pinnacles Astronomy Club, based here in Berea.



Some amateurs are experts at taking excitingly sharp pictures of the moon and planets, as well as deep space nebulae and galaxies that compare well to those taken by large observatories.

Did you know that many stars change brightness? Yes, some folks like to keep close tabs on this phenomenon.

Ever think of making your own telescope? Yes, there are even people who do that. Here are some examples from the 2011 Stellafane telescope makers convention.



Yep, that's me in black, next to my 16-inch reflector.

A great source of information about these and other aspects of amateur and professional astronomy is the **Astronomical League**. Learn more at <https://www.astroleague.org/> This is a national collaboration of amateur and professional astronomers.

Sometimes amateur and professional astronomers work together on real research projects. As a teenager, I worked with a good friend who was observing the moon to help NASA choose landing sites for the Apollo Program. In 2024 I volunteered for the NASA “Eclipse Ambassador Program”. I received a wealth of NASA-produced instructional materials and, along with a Berea College physics student, made presentations to civic and educational institutions in and around Berea about eclipses and how to safely enjoy the April, 2024 solar eclipse.

There are many opportunities for amateur and professional astronomers to collaborate on real, cutting-edge research. Why is that? There is just too much sky up there for the number of professional observatories (both on the earth and in orbit) to study everything! When I visited the great Palomar Observatory in southern California, I learned that, in 1980, total operating costs for the huge Hale Telescope was \$10,000 per hour! With the help of more affordable tech, many amateur astronomers own telescopes and other equipment fine enough for research.

I mentioned NASA, earlier. There are simply too many pictures being made with orbiting telescopes and robotic space probes for NASA to process them all. Amateur astronomers with image processing ability can directly download images and data from NASA for processing and analysis.

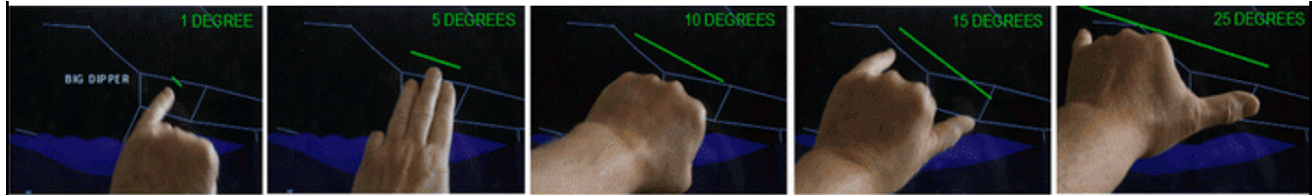
To learn more about these and other opportunities to “work with the big boys”, check out the **International Astronomical Union’s** website at <https://www.iau.org/WG330/WG330/PARC.aspx>

Did you know that you can write a proposal to get time to use the **Hubble Space Telescope**? Some amateur organizations have done just that!



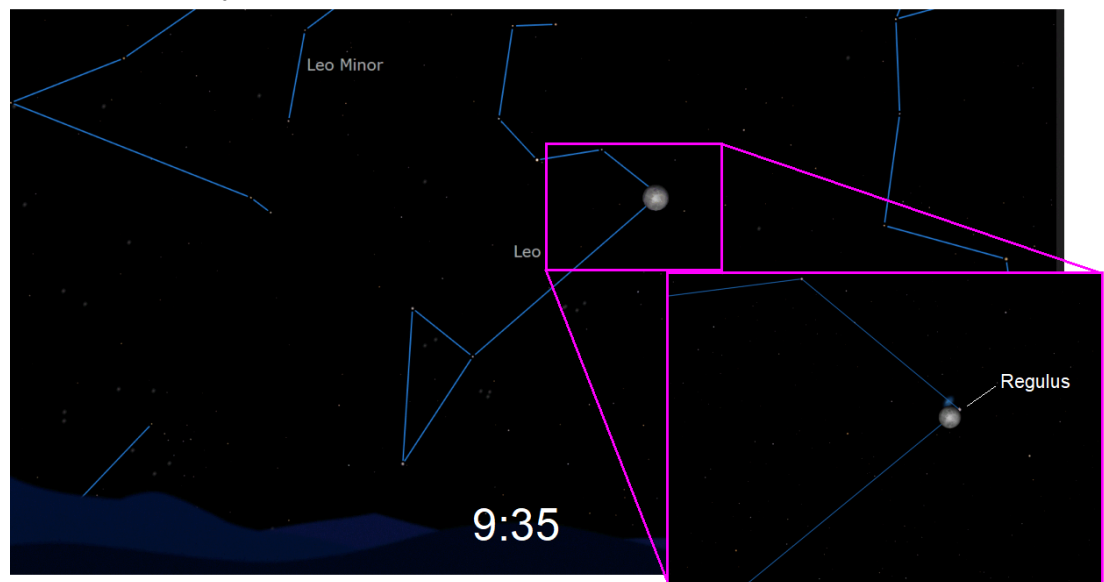
Image courtesy of NASA

Attractions in February

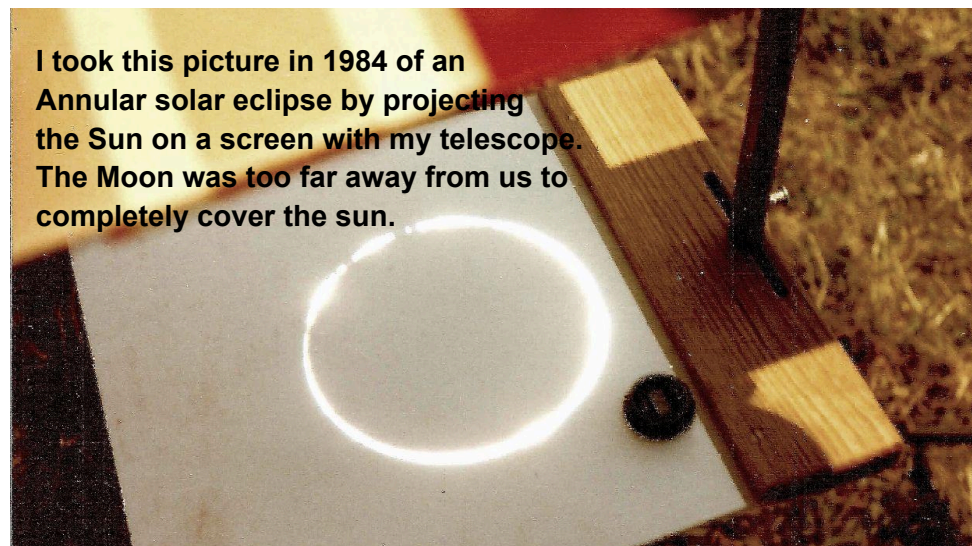


There are 180 degrees from, say, from the eastern horizon to the western horizon, and 90 degrees from any horizon to the straight-up point that is called the **zenith**. When you hold your hand all the way out, then hold three fingers out, like the scout's salute shown in panel 2, your fingers trace out an angular distance of 5 degrees. That's about the width of the bowl of the Big Dipper. When I mention the angular distance between two celestial objects I will state that they are separated by a certain number of degrees. The magazine, *Sky and Telescope*, is the source of most of the following information.

February 2 Get out your binoculars and check out the disappearing act of the star, Regulus, brightest of the constellation, LEO. Because stars are so far away they appear so small that when the lumbering moon covers (occults) them they blink out in an instant. So if you want to see this, be watching with binoculars or telescope no later than, say, 9:30PM.



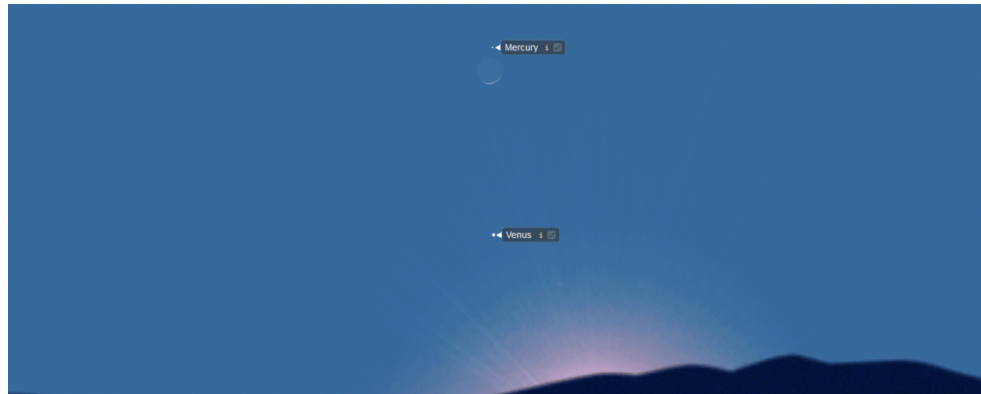
February 17 At 7:01 AM, local time there will be a solar eclipse! The only catch is that you need to be in Antarctica to see it!



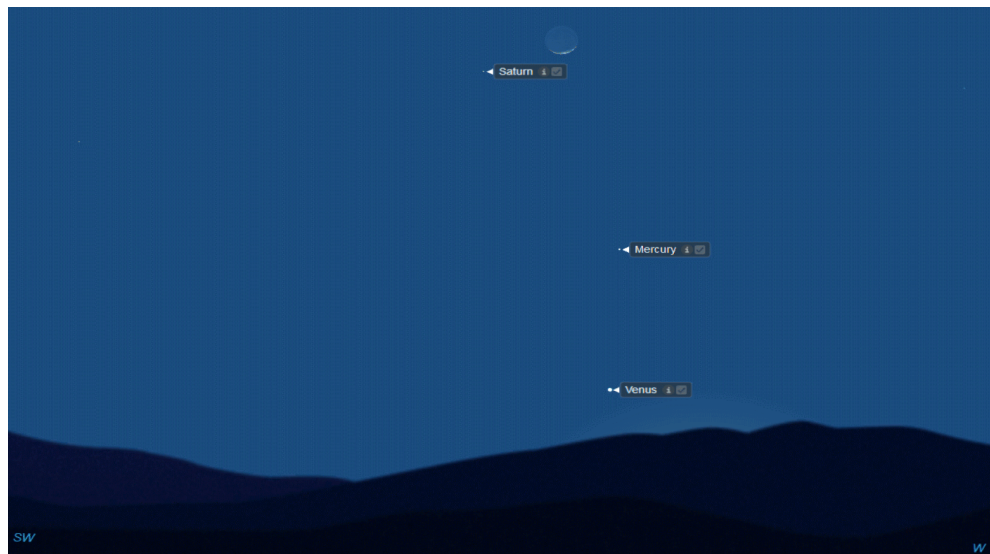
I took this picture in 1984 of an Annular solar eclipse by projecting the Sun on a screen with my telescope. The Moon was too far away from us to completely cover the sun.

February 18 Here's a pretty sight that you'll need binoculars to see. Just after sunset, use your binoculars to spot Venus, shining brightly just above the horizon. Then slowly move straight up to find the Moon, just one day past new. See that little 'star' just above the Moon? That's the planet Mercury.

Warning! Before you look for Venus, the Moon or Mercury, make sure the sun is completely below the horizon!



February 19 Check out how much the Moon has moved eastward in one day and that there's just a little more crescent showing. Now look about 4 degrees to the lower left and, behold! The planet Saturn!



February 23 Once again, the Moon, now in first-quarter phase, buddies-up to the Pleiades star cluster in Taurus. (This is a view with binoculars)

