October Skies over the Pinnacles

October 2023 by Jeff Hutton October's Four Principal Phases of the Moon

October 6	Last Quarter	
October 14	New Moon	\bigcirc
October 22	First Quarter	
October 28	Full Moon	

Don't Look At The Sun

It always sounded strange to hear the words, "There will be a solar eclipse soon, but don't look at it!"

If you are lucky enough to live in the path of a total eclipse of the Sun or have traveled to a location where you can experience this majestic event, please know that during the hour or so it takes the Moon to cover the Sun and the same amount of time it takes the Moon to reveal the sun again, there is only a short time that you can look at the Sun's corona with your bare eyes. You must not look at even the tiniest sliver of sun's disk. When the Sun's disk is completely covered by the Moon, only the sun's outer atmosphere, the corona, is visible. In fact, the beautiful, pearly corona is about as bright as the full Moon.

Sorry, that won't happen here, or anywhere during the **annular solar eclipse** that will happen on Saturday, October 14.



Above is a map of the United States that shows the Moon's shadow as it crosses the country in a few short weeks.

The picture below shows how an **annular solar eclipse** is different from a **total solar eclipse**. The Moon's orbit is elliptical, or oval. So sometimes the Moon appears smaller. If you are along the "PATH OF ANNULAR SOLAR ECLIPSE", seen above, you'll see, <u>through your protective filter</u>, something like the the "Ring of Fire" shown below. The Moon's orbit is an ellipse and that causes it to appear to change size in the sky. If the moon is farther away from us on its orbit (called **apogee**) it will appear smaller and not quite big enough to cover the disk of the Sun during a solar eclipse. That's when we have an **annular solar eclipse**. When it's closer (near what we call **perigee**) during the time of a solar eclipse, the disk of the sun is completely covered and we see a **total solar eclipse**.



Here in Berea, we will experience only a partial solar eclipse on October 14. Only about 45% of the Sun will be covered by the Moon.



Above is a diagram of how and when the Sun will be covered-up by the Moon as seen from Berea.

On October 14, if you're out having one more splash in the pool or cutting the grass, you probably won't notice anything. Even though almost ½ of the sun will be covered around 1PM, you probably won't notice it getting any darker. And, I repeat, DON'T LOOK DIRECTLY AT THE SUN TO SEE IF YOU CAN SEE ANY CHANGES!



The most dangerous accessory that has ever been offered with a store-bought telescope was something called an eyepiece "sun filter". To use it, you would point your telescope at the Sun, then place a dark filter over the top of the eyepiece. Why is it so dangerous? Unfiltered, intense sunlight is allowed to go through the telescope and focus at an intense spot millimeters from the eye. While the glass filter might be dark enough to provide a safe view of the sun, the danger comes from (1. The heat may cause the glass to shatter, sending shards into your eye and (2.unfiltered sunlight can flash through the cracked glass, instantly burning your retina.



Safe Methods for Viewing the Sun



- 1. Cut a hole in a piece of cardboard.
- 2. Tape a piece of new aluminum foil completely over the hole.
- 3. Using a large sewing needle, poke one clean hole through the aluminum foil.
- 4. Hold your viewer so that the little image of the Sun appears on a flat, white surface.



Some Safe ways of Viewing the Sun directly.

Come Safely View October 14th Eclipse

So, what if you do want to witness the partial solar eclipse? Here's a suggestion. The Pinnacles Astronomy Club will have instruments set up at the Forestry Outreach Center from 11:45 to 3:00, so you can safely view the partial solar eclipse on October 14.



This is a picture of my vintage telescope with a modern solar filter placed over the front of the telescope. Bright sunlight never gets in!

Attractions in October

For instance, when you hold your hand all the way out and hold three fingers out, like the scout's salute in panel 2, your fingers create an **angular distance** of 5 degrees, about the width of the bowl of the Big Dipper. When I talk about the distance between, say, the Moon and a star or planet, I'll say that they are separated by a certain number of degrees. Sky and Telescope magazine is my source for most of the following information.



- All Month Around this time, and throughout October is a good time to see if you can catch the faint Zodiacal Light. Best seen just before dawn, this is light bouncing off the interplanetary dust that fills our solar system. Where does it come from? Mostly comets. When you see a faint meteor streaking the night sky, you are seeing one of these grains making a final streak over your head.
- October 1 Look to the east as the glow of the waning gibbous Moon just starts to show above the horizon. Wait awhile and you'll be greeted by a double rising. The Moon will appear along side the bright planet Jupiter. Wait a little while longer and greet the rising of the pretty star cluster, the Pleaides just north.



October 2 The next evening, note how the Moon is rising around 10PM right along side the Pleaides.



October 9

What's that bright 'star' you are seeing in the east while you wait for the bus or maybe on your morning run? It's the planet Venus, just 2-1/2 degrees from Leo's brightest star, Regulus.



October 14

Today's the day for the partial solar eclipse of the Sun. Be ready at noon to see the Moon start to take the tiniest bite out of the Sun's western side. See the above illustration for the best times to see this event. REMEMBER TO VIEW THE SUN SAFELY! Follow the suggestions above and/or join us at the Forestry Outreach Center at Indian Fort.







October 21-11 Starting late at night and continuing until dawn on both days, catch the Orionid Meteor Shower. You won't see as many meteors from this annual shower as some others but the fewer Orionids tend to be slower moving and brighter!



October 28

Watch as the October full (Hunter's) Moon rises in the east just above the planet Jupiter.

