

SKYWATCH

Partial Solar Eclipse will be visible this Saturday

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“Annulus” is a little-used word meaning “ring,” and it’s the root of a term describing a natural phenomenon that transforms the Sun into a ring of fire.

On October 14, parts of the United States and other nations in North, Central and South America will see the ring of fire, which unfortunately will not be visible in the Quad-Cities area. From here, we’ll see a partial eclipse that will cover about half the Sun.

A solar eclipse occurs when the Moon, in its orbit around Earth, blocks out the Sun. We’d see an eclipse once a month if the Moon’s orbit was perfectly circular and perfectly aligned; however, that

is not the case.

The orbit of the Moon is elliptical and comes to points where it is farthest (apogee) and closest (perigee) to Earth. In addition, the plane of the Moon’s orbit is inclined at an angle of about five degrees relative to Earth. As a result, solar eclipses are rather rare and cover a small portion of the Earth when they do occur.

On October 14, the Moon’s orbit will be aligned with the Sun, but will also be near apogee. Thus, the Moon’s shadow will be a bit too small to cover the entire Sun.

The result is an annular eclipse, during which a bit of the Sun is visible around the lunar shadow, forming a ring-like shape. That’s when you see the ring of fire.

WARNING: It is NEVER safe to look at the Sun during an annular eclipse with your naked eyes. Never! It is possible to observe the Sun during its “ring of fire” phase, but only when using properly certified gear (see accompanying article).

If you want to see the annular eclipse in all its glory, you’ll need to travel. The path of the eclipse will enter the United States on the coast of Oregon, then cut at an angle to the southeast before exiting via the Gulf Coast of Texas. Some places and cities where the “ring of fire” will be visible include Crater Lake National Park, Oregon; Bryce Canyon National



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Certified eclipse glasses like these have been distributed free of charge by the Popular Astronomy Club.

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Park, Utah; Mesa Verde National Park, Colorado; Albuquerque, New Mexico; and both San Antonio and Corpus Christi, Texas.

After cutting across the Gulf of Mexico, the path of the annular eclipse will pass over the Yucatan Peninsula and several Central American nations, coming very close to the Panama Canal. The path then moves across Colombia and Brazil before heading over the South Atlantic Ocean, where the eclipse will end at sunset.

As happens during a total eclipse, areas off the path of the annular eclipse will see part of the Sun blocked by the Moon’s shadow. In the Quad Cities, the partial eclipse will be visible be-

ginning at about 10:30 a.m., peak at about 11:55 a.m., and end at about 1:20 p.m. Peak coverage of the Sun will be about 50 percent and will vary depending on your exact location.

Though not near as spectacular as a total or annular eclipse, a partial eclipse is still worth observing — safely, please! — so let’s hope for clear skies on October 14.

The next eclipse we’ll see in the United States will happen next year, on April 8. It will again be partial here but total in a northeasterly path running from Texas to Vermont. You can learn more about this eclipse, and about eclipses in general, at NASA’s website: solarsystem.nasa.gov/eclipses.

If you’d like to see some beautiful celestial objects, and learn more about

them, you’re welcome to the Popular Astronomy Club in the parking lot of Niabi Zoo on October 21 at sundown for a public observing session. This is the next-to-last observing session of the year at Niabi Zoo, with the last scheduled for November 18.

Watch PAC’s online public event calendar (<https://www.popularastronomyclub.org/new-events>) and Facebook page (<https://www.facebook.com/QCPAC>) for information about all our public observing sessions. We’ll see you there!

Viewing the October eclipse: Safety first

If you plan to travel to see the October 14 annular eclipse in all its “ring of fire” glory, or plan to stay in the

Quad-Cities and view the partial eclipse visible in this area that day, be aware that you should NEVER look at the Sun during this celestial event without proper protection.

Staring at the sun with your naked eyes can cause permanent damage to your eyesight. This can happen both quickly and painlessly, meaning you might be unaware of what you’ve done to yourself until it’s too late.

The one and only safe way to view an annular and/or partial eclipse is by using solar viewing glasses — often called “eclipse glasses” — that are certified to the ISO 12312-2 international standard. Eclipse glasses from reputable sources will be clearly marked as being certified as such. Be aware that some less than reputable sources have been

known to sell non-certified eclipse glasses. Always check to be sure.

If you have some old eclipse glasses on hand, do not use them if they are scratched, torn or damaged in any way. The safe approach is to get new solar viewing glasses for each eclipse.

It is definitely NOT safe to don eclipse glasses and then look at the Sun through your camera, binoculars, telescope or other viewing device. Doing so could both damage your eyes and the device you’re using.

It is possible to view and photograph an eclipse through a camera, binoculars or telescope, but only when using specialized solar filters. Again, you must assure that these filters are certified to international safety standards.

You can view the partial eclipse safely on October 14 by attending either of two viewing events being held by the Quad Cities Astronomical Society. Both begin at 10:30 a.m. and are free and open to the public.

The events will be held at the Rogalski Center at St. Ambrose University in Davenport, and at the Coffee Hound at the BettPlex in Bettendorf. Sun-safe viewing devices will be set up, and free certified eclipse glasses will be available for distribution.

While the Popular Astronomy Club has no events planned for October 14, PAC has distributed nearly 500 eclipse glasses at public events held in the past few months. The glasses were obtained from the Astronomical League and were given out free of charge.