

October's Ring of Fire Solar Eclipse

By Lauren Likkel

I'll be chasing a solar eclipse next month. Here in Wisconsin, you can see a partial eclipse during the Saturday October 14, 2023 annular solar eclipse. But to see the maximum eclipse, you would have to leave Wisconsin. The path of totality will stretch from Oregon to Texas. I should say "path of annularity" because for an annular eclipse, although the moon blocks most of the sun, a ring of sun will still be seen around it.

The moon during this eclipse will appear slightly smaller than average since it will be farther from the Earth than average in its orbit around Earth. This results in the moon being too small to completely block the sun – leaving the moon eclipsing most of the sun but leaving a ring ("annulus") of bright sun showing around it at maximum eclipse.

There is a serious risk of permanently damaging your eyes if you look at the sun to see a solar eclipse. Since the sun is never totally blocked out in an annular solar eclipse, there is no chance to safely look at the eclipsed sun for the October eclipse. For totality of a true total solar eclipse, like the one in April 2024, there are a few minutes when the sun is completely blocked and you can actually look at the eclipsed sun directly with your eyes.

Some people know it endangers your eyes to look at a solar eclipse, but conclude incorrectly that there are dangerous eclipse rays worse than staring at the sun on a non-eclipse day. I have heard of parents keeping their children inside during a solar eclipse, even closing the curtains to keep them safe. The danger of looking at the sun is probably related to traditions about solar eclipses of some indigenous tribes. The Navajo have a tradition that an eclipse is a time for reverence, and that it could be dangerous if one looks at the eclipsed sun. Many Navajo and Ute tribal members still honor those traditional practices and beliefs about the power of solar eclipses and will not look at the eclipse as it passes over their lands next month. Instead they will stay reverently indoors.

Here in the Chippewa Valley, the partial eclipse on October 14 will last over 2 hours, starting at 10:30am with the maximum just before noon. If you are at a different location for the eclipse, the times will be different, and not just because of time zone differences. For a solar eclipse, the time of eclipse depends on your location (unlike a lunar eclipse where everyone viewing the moon would see the same eclipse unfold). If you have access to solar eclipse glasses or can project the image of the sun you can see the "bite" taken out of the sun by the moon blocking part of our view. Keep in mind it is not safe to look at the sun directly without a solar filter, even during a solar eclipse.

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Figure caption: This annular solar eclipse was in New Mexico in 2012. For an annular eclipse, the new moon is directly between us and the sun, but the moon is at a place in its orbit around Earth where it appears smaller than usual. In this case the moon's angular size is a little less than the sun's, so a ring of the sun remains uncovered during alignment.

Photo credit: Kevin Baird

