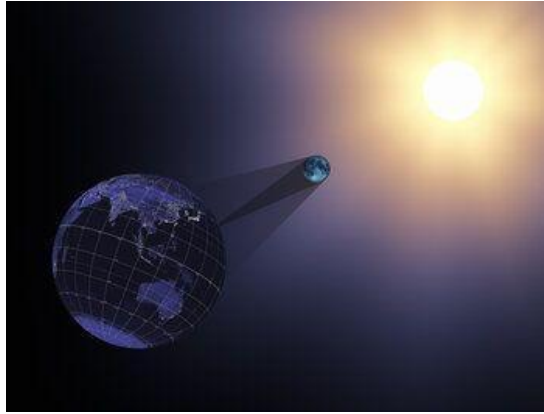


Monday, April 8, 2024 -- Partial Solar Eclipse (2:00-4:30 pm)

On Monday, April 8, 2024 the Washington, DC area will experience a partial solar eclipse. A solar eclipse happens when the moon moves between the Earth and the Sun and casts a shadow across the surface of the Earth.

Solar eclipses are classified as either total, in which the Moon completely covers the Sun, or annular, in which the Moon obscures all but an outer ring of the Sun. During an annular solar eclipse, the apparent size of the Moon's disk is slightly smaller than the apparent size of the Sun's disk. Therefore, only the outer edge of the Sun remains visible and the Sun appears as a brilliant ring if you are inside the path of annular solar eclipse. This is an otherworldly sight often called a "ring of fire." This eclipse will



be seen as total in a narrow path from Mazatlan, Mexico through Dallas, Indianapolis, Cleveland, Buffalo, and northern Maine. In the Washington, DC area, the Moon will not completely cover the Sun, so we will experience a partial solar eclipse.

Use eclipse glasses, solar projection, or a solar filter to safely watch this spectacular event.

You must use eclipse glasses, solar filters, or other safe viewing method during all stages of this eclipse (<http://solar-center.stanford.edu/observe/>). Pinhole projection is an inexpensive, convenient method to safely view the partial eclipse. Pinhole projection does not mean looking at the Sun through a pinhole!

You don't need any special equipment to do this! You can build a pinhole camera (next column) or simply cross the outstretched, slightly open fingers

of one hand over the outstretched, slightly open fingers of the other. Then, with your back to the Sun, look at your hands' shadow on the ground. The little spaces between your fingers will project a grid of small images on the ground.

Projecting the Sun

To make a simple pinhole camera to view the eclipse you need:

- A sheet of white paper
- A 3x5 card or thin cardboard
- A pin
- A sunny day
- Perhaps a friend's help

With a pin, poke a hole in the card.

Go outside, hold the card up, and

aim the hole at the Sun. Do not look at the Sun through the pinhole or any other way! Center the shadow of your card on the white paper, at least 3 ft. (1 meter) above the paper. Now, find the image of the Sun that is coming through the pinhole. Move the other sheet of paper back and forth to find the best image. What you see is not just a point of light, but an actual image of the Sun!

During the eclipse, the circle of the Sun's image becomes a smaller and smaller crescent, then grows again until it is all over.



Eclipse Resources

Solar Eclipse Across America. <https://eclipse.aas.org/> Official site provided by the American Astronomical Society with the support of National Science Foundation. Impartial, provides good information, and links to other resources. Click on all the tabs to scan all the tips and all the resource links. Contains general and specialized information for viewing and photography, student activities, partial eclipses, and also community and organizational planning suggestions.

Eclipsophile.com (by Jay Anderson) Best description and discussion of climate over the eclipse path. This is the go-to resource for understanding what can and cannot be predicted, and how to change your point-of-view for climatology to forecasts as the eclipse approaches. A must-read.

EclipseWise.com (by Fred Espenak) A resource for the precise geometry of how the eclipse intersects the Earth surface. Also covers past and future eclipses. Sells detailed eclipse maps. Also includes other material created by Espanak, one of the pre-eminent experts on solar eclipses, their prediction, and their observation.

Get Eclipsed: A Family Guide -2023 & 2024 (Espanak family) A 50 p. book for purchase. <https://www.mreclipse.com/pubs/GetEclipsed24.html>

GreatAmericanEclipse.com (by Michael Zeiler) Lots of information about the eclipse path and the cities in or near totality. Website with poster, maps, apparel, etc. for both 2023 & 2024. <https://www.greatamericaneclipse.com/>

Shadow & Substance (by Larry Koehn) Animations of what the eclipse looks like 2023 & 2024 <https://www.shadowandsubstance.com/>

Being in the Shadow (Dr. Kate Russo) <https://www.beingintheshadow.com/>
Expresses the feelings of eclipse chasing.

National Science Teachers Observers Guide:
<http://static.nsta.org/extras/solarscience/SolarScienceInsert.pdf>

Northern Virginia Astronomy Club
<http://novac.com>

NASA Eye Safety: <https://eclipse.gsfc.nasa.gov/SEhelp/safety.html>

For astrophotographers

How to Photograph a Solar Eclipse (Espanak)
<https://www.mreclipse.com/SEphoto/SEphoto.html> Updated excerpts from his 2008 book Totality: Eclipses of the Sun

How to Photograph the Solar Eclipse (Alan Dyer)
<https://tinyurl.com/bdz2bf6d> \$3 Kindle edition for the 2017 eclipse should tell you what you need. Covers visual phenomena as well. Dyer is great on astrophotography. A must-have. At 296 pp., if it isn't in here, you probably don't need it.

Places that sell solar filters for viewing or telescopes

These sites, among others, provide solar filters that are considered safe when used properly, under a specification adopted by the International Standards Organization.

Thousand Oaks Solar Filters: <http://thousandoaksoptical.com/> Formed filters and raw sheets for making camera filters

Orion Telescopes (solar filters & equipment):
<http://www.telescope.com/home.jsp>

AgenaAstro (solar filters & astronomy equipment):
<https://agenaastro.com/solar-astronomy.html>

American Paper Optics (solar viewers) <https://www.eclipseglasses.com/>

Places online where you may find various eclipse-related articles

Sky & Telescope Magazine: <http://www.skyandtelescope.com>

Astronomy Magazine: <https://www.astronomy.com/>