



NASA Eclipse Planning



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on behalf of the NASA Eclipse Collective

Program Manager & Engagement
Manager

June 9, 2023

THE HELIOPHYSICS BIG YEAR

Eclipse Efforts

**Science, Missions,
Engagement**



Citizen Science

TIMING & MILESTONES

Buildup: Jan. 2023 – Oct. 2023

Kick-Off Event: ~Sept./Oct. 2023

Annular Eclipse: Oct. 14, 2023

Total Eclipse: April 8, 2024

Parker Perihelion: Dec. 24, 2024

HBV Officially Ends: Dec. 2024



MONTHLY THEMES

October 2023: Annular Eclipse

November 2023: Citizen Science

December 2023: Mission Fleet

January 2024: The Sun Touches
Everything

February 2024: Fashion

March 2024: Experiencing the Sun

April 2024: Total Solar Eclipse

May 2024: Visual Art

June 2024: Performance Art

July 2024: Physical Health

August 2024: Kids

September 2024: Environment/
Sustainability

October 2024: Solar Cycle/Solar Max

November 2024: Bonus Science

December 2024: Parker's Perihelion

A total solar eclipse is shown against a dark background. The sun is a bright, glowing orange-yellow disk with visible solar flares and rays emanating from its surface. The moon is a dark, circular disk positioned in front of the sun, completely obscuring it. The moon's surface shows some lighter and darker patches, likely craters and lunar maria.

NASA Priorities for 2024 Total Solar Eclipse

- Safety
- Broadening Participation
- Science
- Public Engagement
- Science Activation
- Citizen Science



Eclipses

ECLIPSES HOME SAFETY FUTURE ECLIPSES SCIENCE NEWS RESOURCES ABOUT



Get Ready for These Upcoming Eclipses in the United States!



<https://solarsystem.nasa.gov/eclipses/>

Just a few resources on the eclipse website!



National Aeronautics and Space Administration

Experience the Annular Solar Eclipse

Saturday, October 14, 2023

WHAT IS A SOLAR ECLIPSE?

Eclipses happen when one object in space passes through the shadow of another object in space. During a solar eclipse, the Moon passes between the Sun and Earth, blocking all or part of the Sun for the viewer.

Annular Solar Eclipse
An annular eclipse happens when the Moon is lined up between the Sun and Earth, but at its farthest point from Earth. Because the Moon is farther away from Earth than usual, it seems smaller. It does not block the entire view of the Sun. When it is in front of the Sun, the Moon will look like a dark disk on top of a larger, bright disk. This creates what looks like a ring around the Moon.

Total Solar Eclipse
For a total eclipse to take place, the Sun, Moon, and Earth must be in a direct line. The people who see the total eclipse are in the center of the Moon's shadow when it hits Earth. The sky will darken, and if it were twilight, weather permitting, people in the path of a total solar eclipse can see the Sun's corona, the outer atmosphere of the Sun. A total solar eclipse is the only type of solar eclipse where viewers can watch without their eclipse glasses—and they can only remove them when the Moon is completely blocking the Sun.

Hybrid Eclipse
Sometimes a solar eclipse can appear as an annular in some places and a total in others as the Moon's shadow moves across Earth's surface. This is known as a hybrid eclipse.

Partial Solar Eclipse
A partial eclipse happens when the Sun, Moon, and Earth are not exactly lined up. Only a part of the Sun will appear to be covered. During a total or annular solar eclipse, people outside the Moon's inner shadow see a partial solar eclipse.

WHERE TO WATCH
To find out what's happening in your area, go to: solarsystem.nasa.gov/eclipses

HOW TO WATCH
You can see the Sun and an eclipse with special eclipse or solar viewing glasses. NEVER look directly at the unfiltered or partially eclipsed Sun without appropriate eye wear. Sunglasses are not safe to use as an eclipse. For more information, visit go.nasa.gov/EclipseEyeSafety

HOW LONG WILL IT LAST
The length of the eclipse will depend on your viewing location. The partial phases will last 1 to 2 hours both before and after annularity. For most locations, annularity will last between 2 and 5 minutes, but it will be longer or shorter in some places.

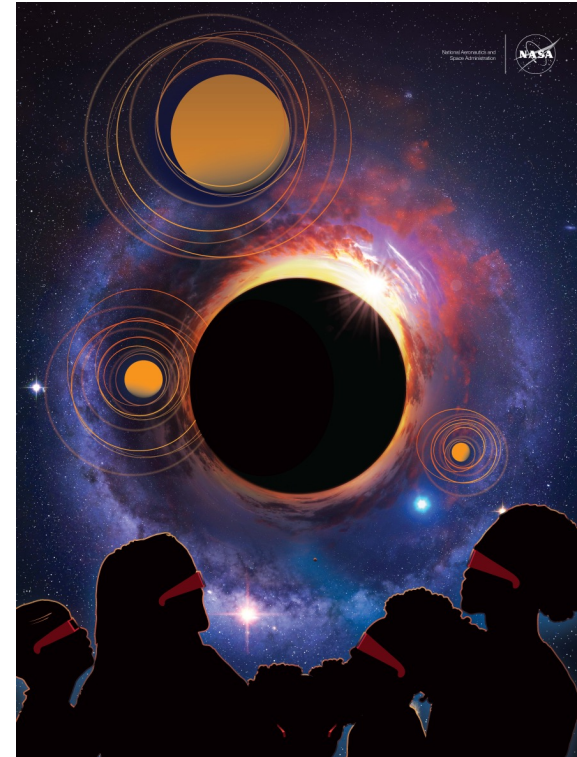
Geometry of an Annular Solar Eclipse

Umbra
Penumbra

Earth
Moon
Sun

During an annular eclipse, the Moon's inner shadow cone (the Umbra) does not reach Earth's surface. Observers in the "Antumbra" will see a ring of sunlight around the Moon. Diagram for 10:00 AM EDT on Oct. 14, 2023. The Moon would be 30 Earth diameters away from Earth. The Sun would be 400 times that distance.

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Solar Eclipse

A solar eclipse occurs when the Moon passes between Earth and the Sun, thereby obscuring Earth's view of the Sun, totally or partially. Such an alignment coincides with a new moon, indicating the Moon is closest to the plane of the Earth's orbit. In a total eclipse, the disk of the Sun is fully obscured by the Moon. In partial and annular eclipses, only part of the Sun is obscured.

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Featured Mini Lessons

How will different Locations in the US Experience the 2024 Solar Eclipse?

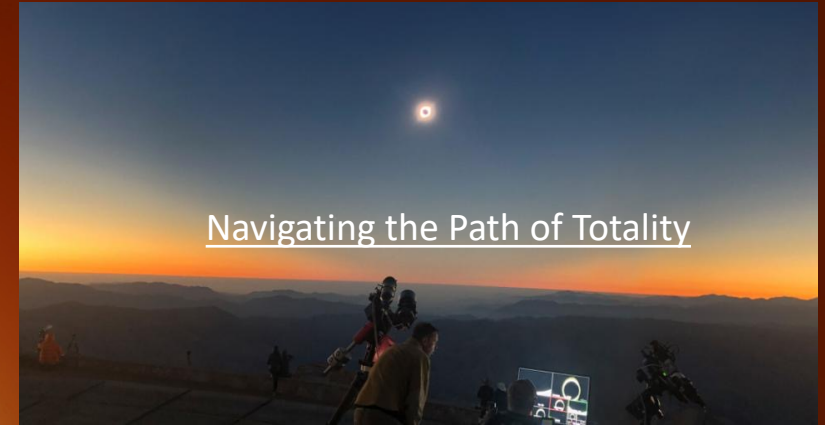




Heliophysics Education Activation Team
(NASA HEAT)



Eclipse
Ambassadors



Navigating the Path of Totality



The Eclipse Soundscapes Citizen Science Project



Earth to Sky (ETS)



science through shadows

Science Through Shadows



Eclipse Ballooning

Eclipse-Focused NASA Science Activation Projects

<https://science.nasa.gov/learners/science-activation-teams>

Eclipse Training for NASA

- **Eclipse Training on Annular Solar Eclipse – soon!**
- **Eclipse Training on Total Solar Eclipse – this fall**

NASA Heliophysics Education Activation Team (NASA HEAT) is providing eclipse support.

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