



<http://go.nasa.gov/HelioBigYear/>

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2024 Solar Eclipse

National Aeronautics and
Space Administration

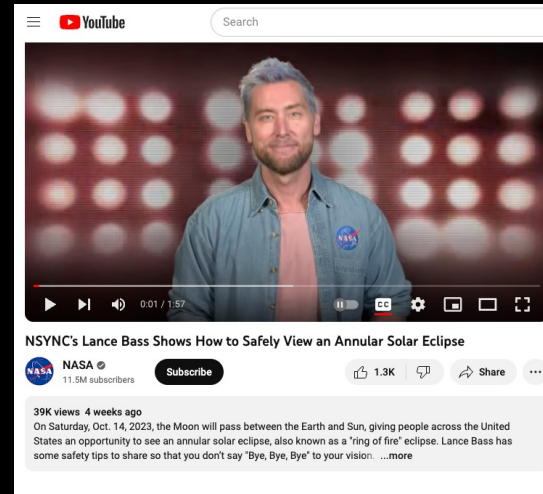
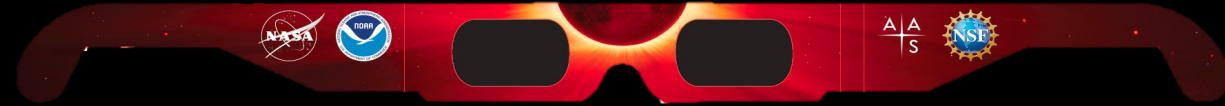


ECLIPSE



2023 THROUGH THE EYES OF NASA

Safety First!



NASA Promoted safe eclipse viewing through distribution of glasses to partner organizations, creation of a safety flyer in partnership with NOAA, NSF, and the American Astronomical Society, Public Safety Announcements by celebrities, and modeling safe viewing by our Heliophysics leadership.



Public Engagement

- 11 Million views of broadcast in English; 2.1 million views of the Spanish broadcast
- International Balloon Fiesta event,
- Balloon Museum (NOAA led)
- River Festival in Kerrville Texas
- Boulder Colorado (NOAA and NSF)
- Grand Basin National Park
- Mesa Verde National Park



Heliophysics Education Activation Team
(NASA HEAT)



Eclipse Ambassadors



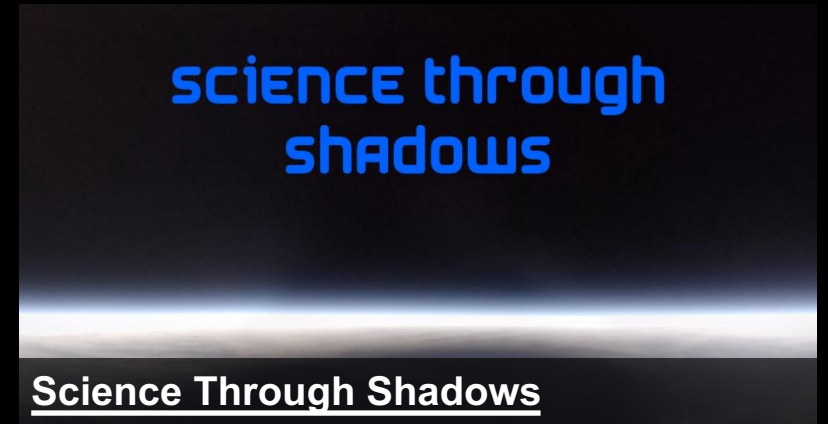
Navigating the Path of Totality



The Eclipse Soundscapes Citizen
Science Project



Earth to Sky (ETS)



Science Through Shadows



Eclipse Ballooning

Eclipse-Focused NASA Science Activation Projects

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

NASA Priorities for 2024 Total Solar Eclipse

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



ECLIPSE SOUNDING ROCKETS

Three instrumented rockets are launching during both the annular and total solar eclipses.

Launch Sequence

- **Rocket 1:** launching ~35 minutes before peak eclipse
- **Rocket 2:** launching at peak eclipse
- **Rocket 3:** launching ~35 minutes after peak eclipse

Objectives

- Explore how the eclipse shadow promotes irregularities in the ionosphere
- Understand how the ionosphere responds to local changes in density, temperature, and conductivity
- Assess how lower atmosphere cooling due to the eclipse impacts ionospheric dynamics

SOLAR ECLIPSE SCIENCE

Eclipse Chasing with NASA's High-Altitude Research Planes

- Planes will take observations with a camera that images in infrared and visible light at high resolution and high speed.
- They will study a dust ring around the Sun and search for asteroids that may orbit near the Sun.

Airborne Imaging and Spectroscopic Observations of the Corona

- NASA's WB-57s will fly cameras and spectrometers, yielding insight into the constant stream of particles emitted by the Sun.

<https://go.nasa.gov/3JnKx9q>

'Listening Party' for Amateur Radio Operators

Will record how strong and far radio signals go to observe how the ionosphere changes during the eclipse. Past experiments have shown that these changes, due to solar eclipses, have significant impacts on how radio waves travel.

Solar Radiation's Effects on Earth's Upper Atmosphere Layer

Will use three SuperDARN radars to study the ionosphere during the eclipse and compare the measurements to answer questions about how the ionosphere reacts to a solar eclipse.

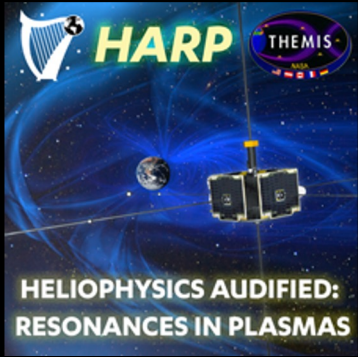
Bringing the Sun's Magnetic 'Hot Spots' Into Sharper Focus

Will use the 34-meter Goldstone Apple Valley Radio Telescope to distinguish light signals coming from one portion of solar active regions versus another. This measures changes to the radio emissions from active regions.

Solar Eclipse Updates

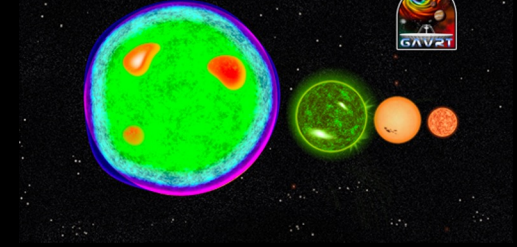


The Helio Big Year is Here



Planet Hunters TESS

Solar Patrol (GAVRT)



Citizen CATE



Dynamic Eclipse Broadcast Initiative

ECLIPSE MEGAMOVIE



+ more by Semeter, Young

Eclipse Projects

For more info, check out overview posts on citizen science from @NASASun and the Aurorasaurus blog.

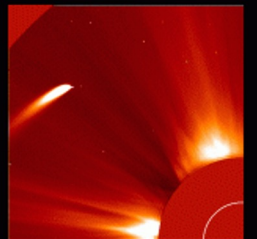


GLOBE

Aurorasaurus



Sungazers



How to Get Involved

- Scientists at NASA can contact their center lead and join the NASA Eclipse Collective Team.
- Scientists involved with NASA missions can work with the mission to do outreach around the mission during the eclipse.
- Help spread eclipse safety & Heliophysics Big Year messages by collaborating with a university on events they have planned.
- Host an eclipse-viewing event
 - Collaborate with local museums or national and local parks
 - Show NASA TV Broadcast
 - Explore additional STEM Activities, Speakers, etc.
 - Participate in a Citizen Science project