



The **GLOBE** Program

#GLOBEMeeting2024

# Engaging Audiences with Eclipses

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GLOBE **Eclipse**

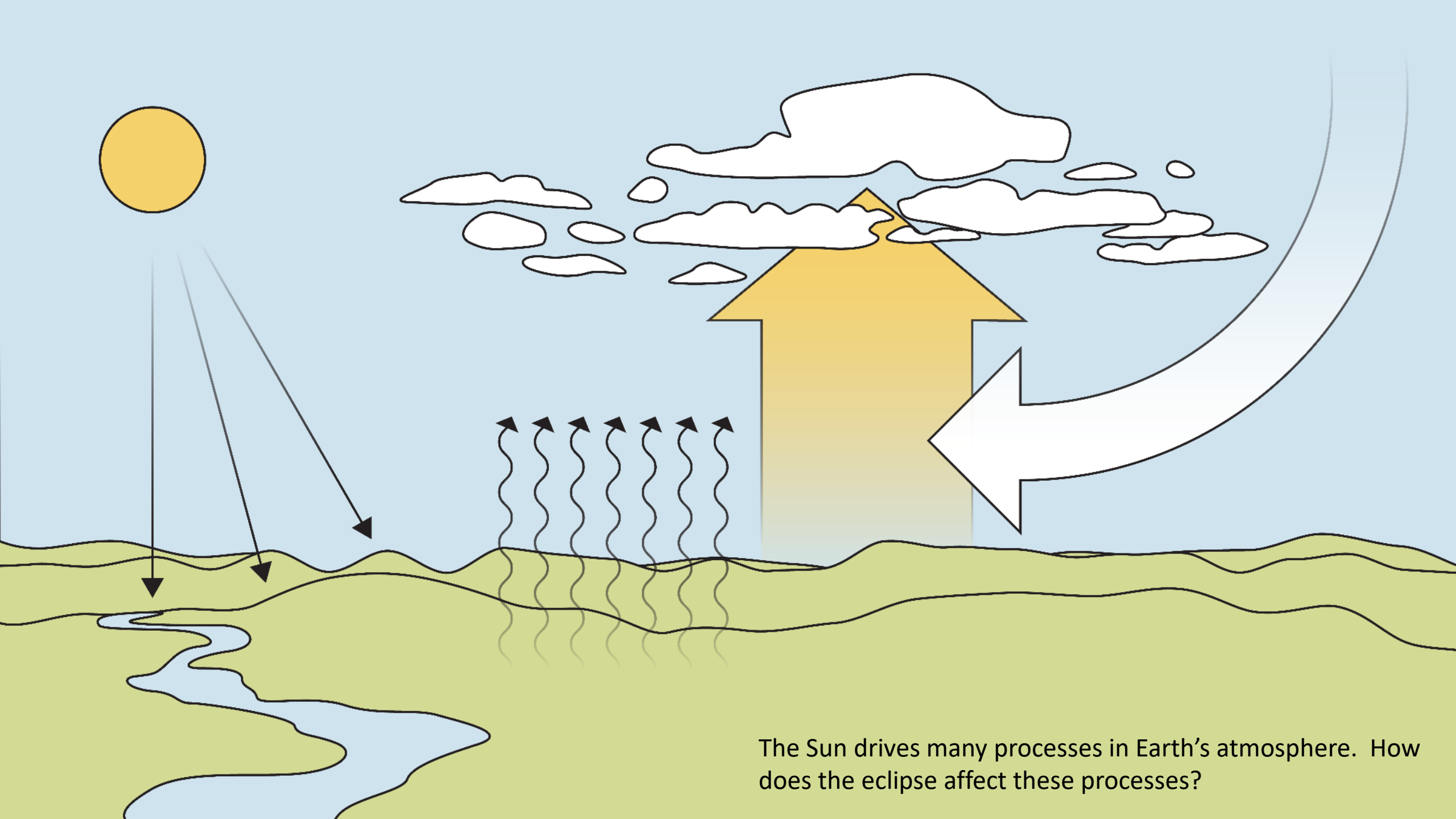


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The Sun drives many processes in Earth's atmosphere. How does the eclipse affect these processes?



Document the surrounding landscape and include the thermometer in one photo.



Observe the clouds every 15-30 minutes or anytime there is a change.



Record the air temperature every 5-10 minutes for 2 hours before and after max eclipse.



## Eclipse Resources

**The Sun drives many processes in Earth's atmosphere.**

**Air Temperature**  
Energy from the Sun warms the surface of the Earth. Warmth from the Earth's surface heats the surrounding air, causing it to rise.

**Clouds**  
Warm air cools as it rises, and water vapor condenses into fluffy cumulus clouds.

**Wind**  
Changes in temperature drive differences in air pressure, causing wind to form.

**Observe the Total Solar Eclipse with GLOBE Observer**

Explore the Sun-Earth connection by observing what happens to our atmosphere during the solar eclipse on April 8, 2024.

The Sun drives many processes in Earth's atmosphere. During an eclipse, the Moon casts a shadow on the Earth's surface. In the shadow, the air temperature drops and clouds that are fueled by the heat of the Sun may begin to dissipate. With just a smartphone and a thermometer, you can help us better understand the complex relationship between the Sun and Earth.

**Get the App**  
Download the GLOBE Observer app onto a smartphone or tablet by scanning the QR code or going to [observer.globe.gov/get-the-app](https://observer.globe.gov/get-the-app).

**Find a Thermometer**  
You will need a thermometer to collect air temperature data.

**How to Use the GLOBE Eclipse Tool**

1. **Open the Eclipse tool.** Tap the Eclipse button under "Choose your protocol."

2. **Enter your settings.** Select your thermometer type, choose between Celsius and Fahrenheit, and turn Measurement Alarms on or off. Location is set automatically.

3. **Document your site.** Use the Land Cover tool to document your observation site. You will report the surface conditions and then take photos in each direction, include your thermometer in one of the photos.

Remember, looking directly at the Sun without proper eye protection is unsafe EXCEPT when the Moon completely blocks the Sun. This happens ONLY within the narrow path of totality. Outside the path of totality, it is NEVER safe to look directly at the Sun without a solar filter.

[www.nasa.gov](https://www.nasa.gov)

**The Sun drives many processes in Earth's atmosphere. What happens when the Sun is blocked, even just temporarily?**

Energy from the Sun warms our planet, and changes in temperature lead to the formation of clouds and wind. What happens when the Sun is blocked by the Moon? Download the GLOBE Observer app to share your observations during the eclipse.

**Air Temperature Data Sheet**

Use this data sheet to record air temperature measurements during the total solar eclipse on April 8, 2024. All you need is a thermometer that measures air temperature. You do not need to be within the path of totality to collect data.

**Eclipse Planner**  
You can look up the percent coverage, eclipse type, and times by scanning the QR code or going to [eclipsesundscapes.org/eclipse-lookup-tool](https://eclipsesundscapes.org/eclipse-lookup-tool).

**Thermometer Set-Up**  
Place your thermometer in a shaded, but well-ventilated area. For example, you can place your thermometer under a chair or hold it in your own shadow. Be sure to hold the thermometer away from yourself or other sources of heat.

**Thermometer Type:**

- Liquid Filled
- Digital
- Weather Station
- Other:
- Fahrenheit
- Celsius

**Safety First:** Looking directly at the Sun without proper eye protection is unsafe EXCEPT when the Moon completely blocks the Sun. This happens ONLY within the narrow path of totality. Outside the path of totality, it is NEVER safe to look directly at the Sun without a solar filter.

Scan or take legible photos of both pages and email [lists.nasa.gov](mailto:lists.nasa.gov).



**Eclipse**

**GLOBE Eclipse: Preparing for April 2024**

**Introduction & Safety**

How to Use the GLOBE Eclipse Tool

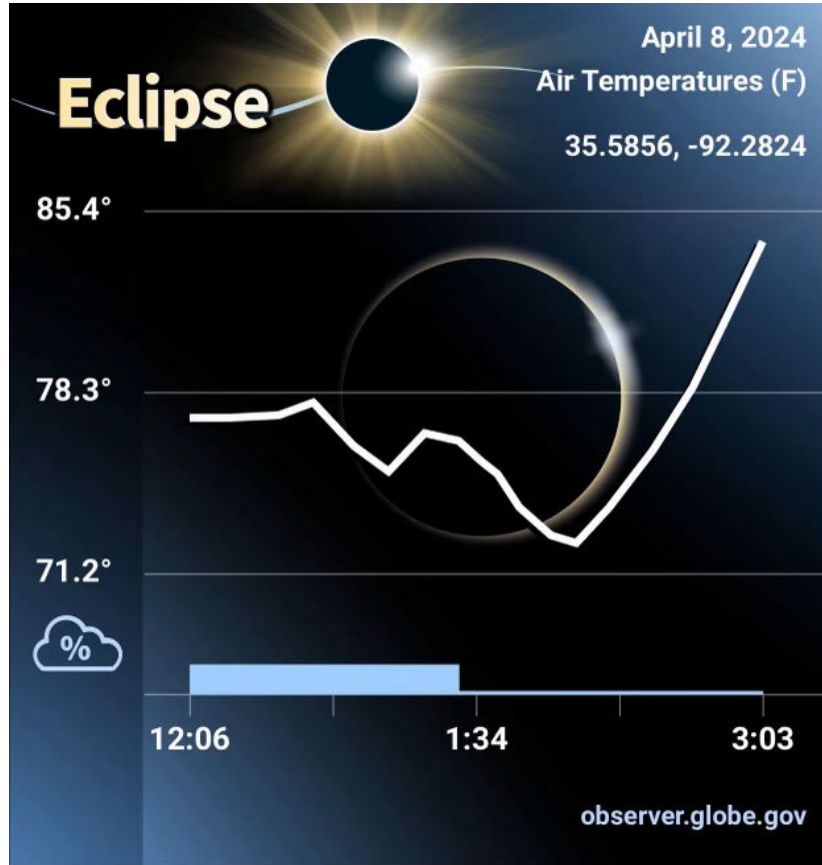
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Fairfield Bay, Arkansas, USA  
Totality length: 4 minutes, 15 seconds (1:52-1:56 local time)



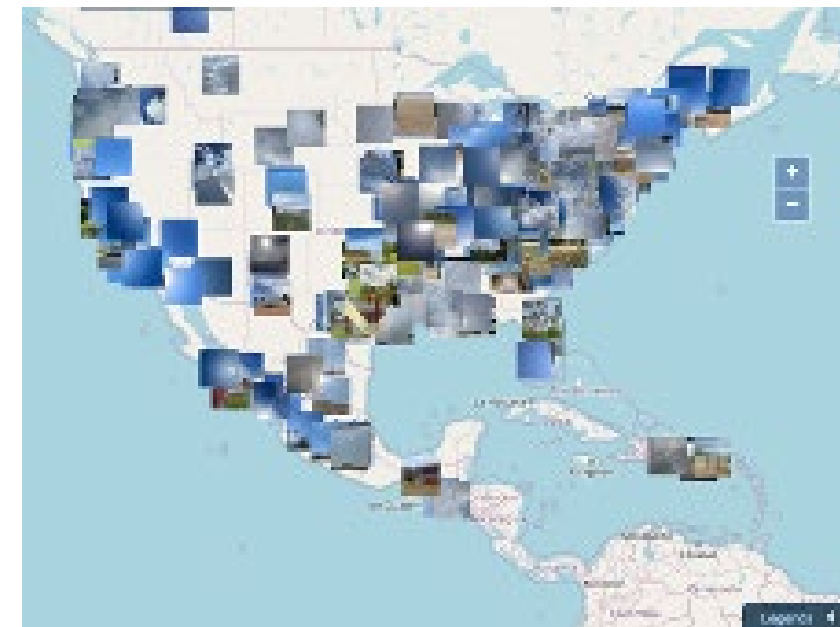
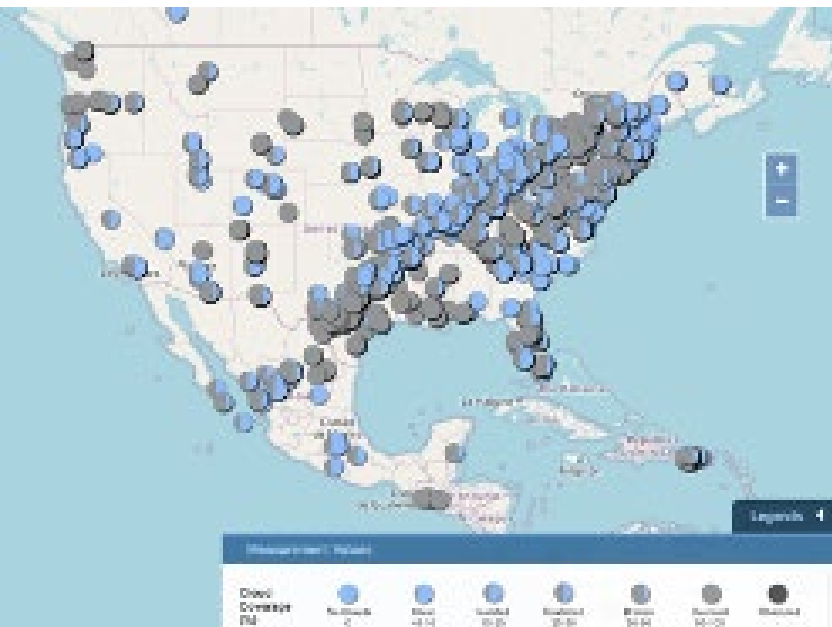
1644 UTC – setting up the site



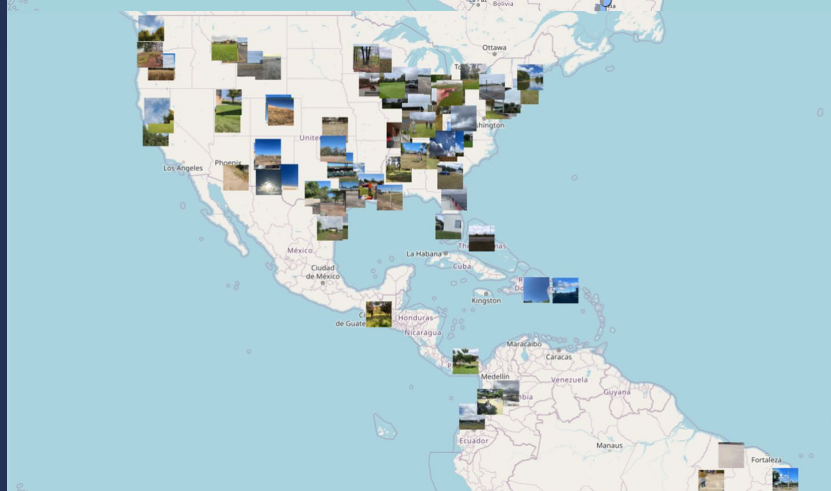
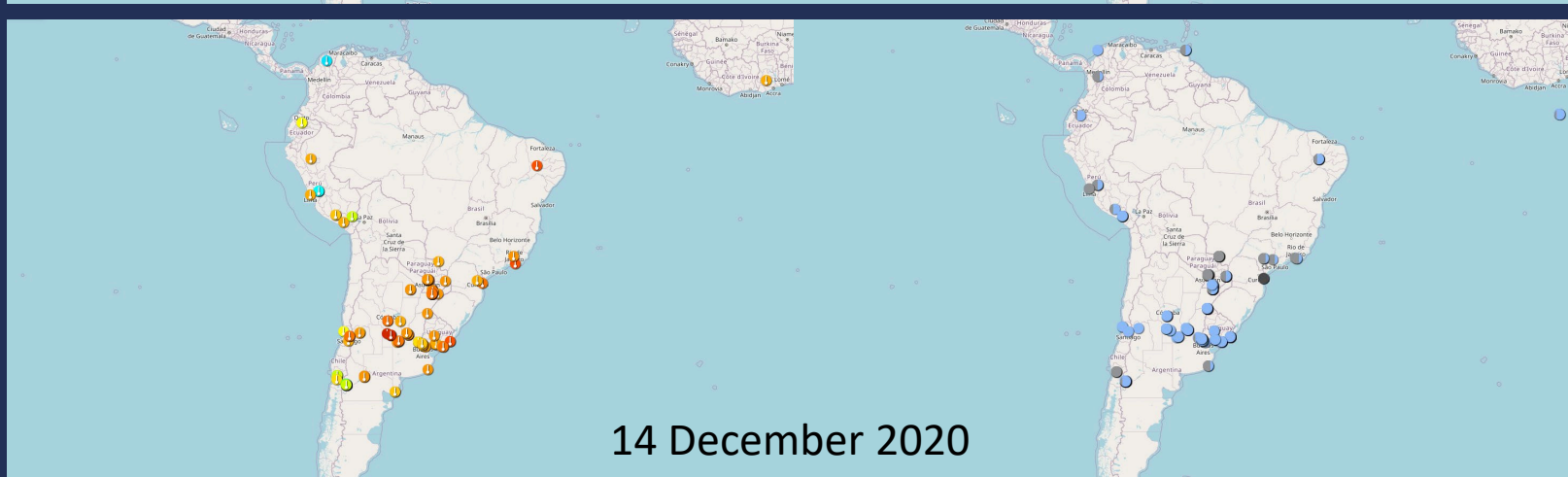
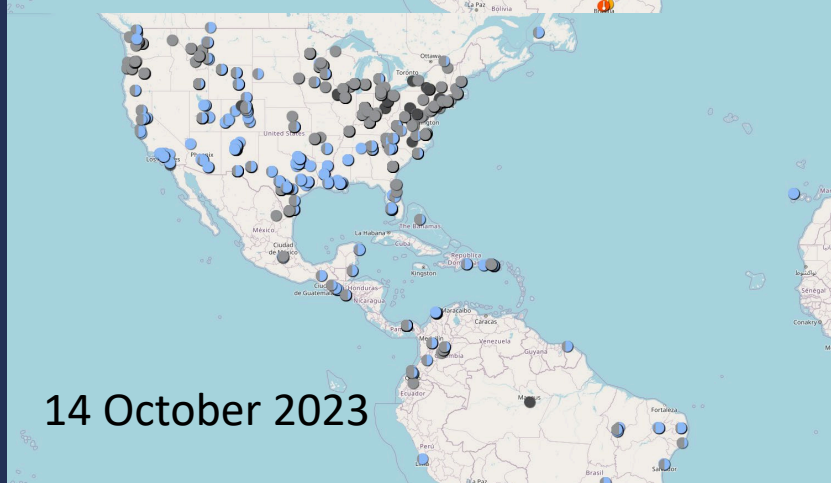
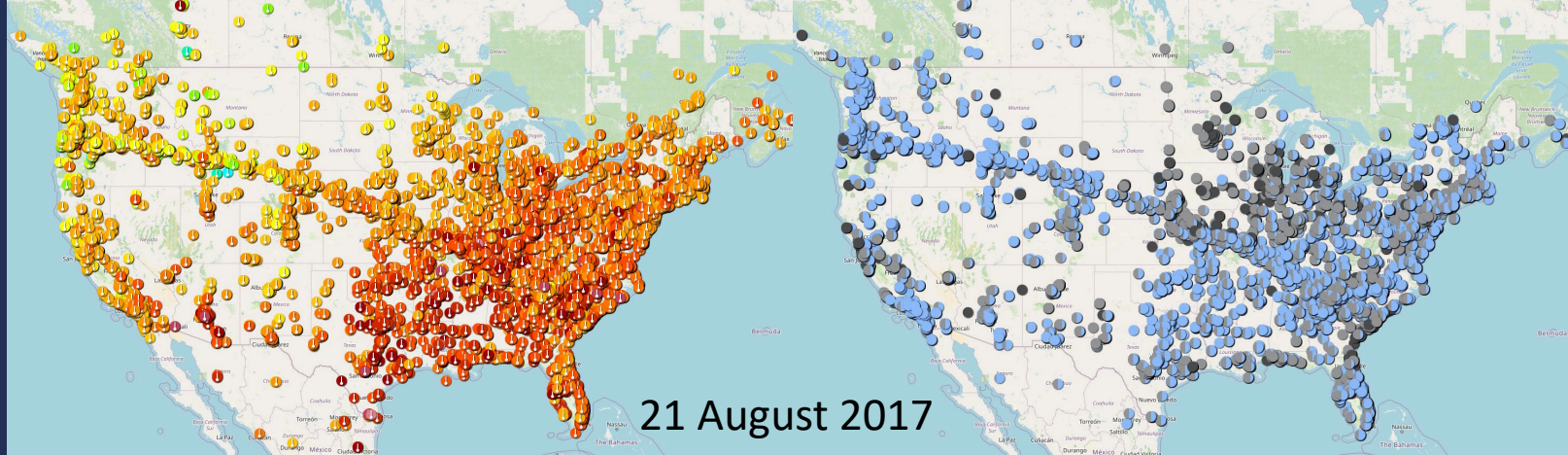
1901 UTC – eight minutes after totality ended



## Data collected April 2024:



As of July 8: 6,982 clouds observations, 32,384 air temperature data points, and 631 land cover observations from the day of the eclipse in areas with partial and total obscuration.





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Jeremy Lewan/WNEP 16



Southfield Public Library



Michelle Carey/CAP

A broadcast meteorologist was among the first to see the eclipse from a boat off the coast of Mazatlán.

Southfield Public Library in Detroit, Michigan was one of many libraries that organized eclipse programming.

Civil Air Patrol teams collected data in every state, DC, and Puerto Rico as part of their Solar Eclipse Mission.





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WFOR - Miami



Holli Kohl/NASA & GLOBE

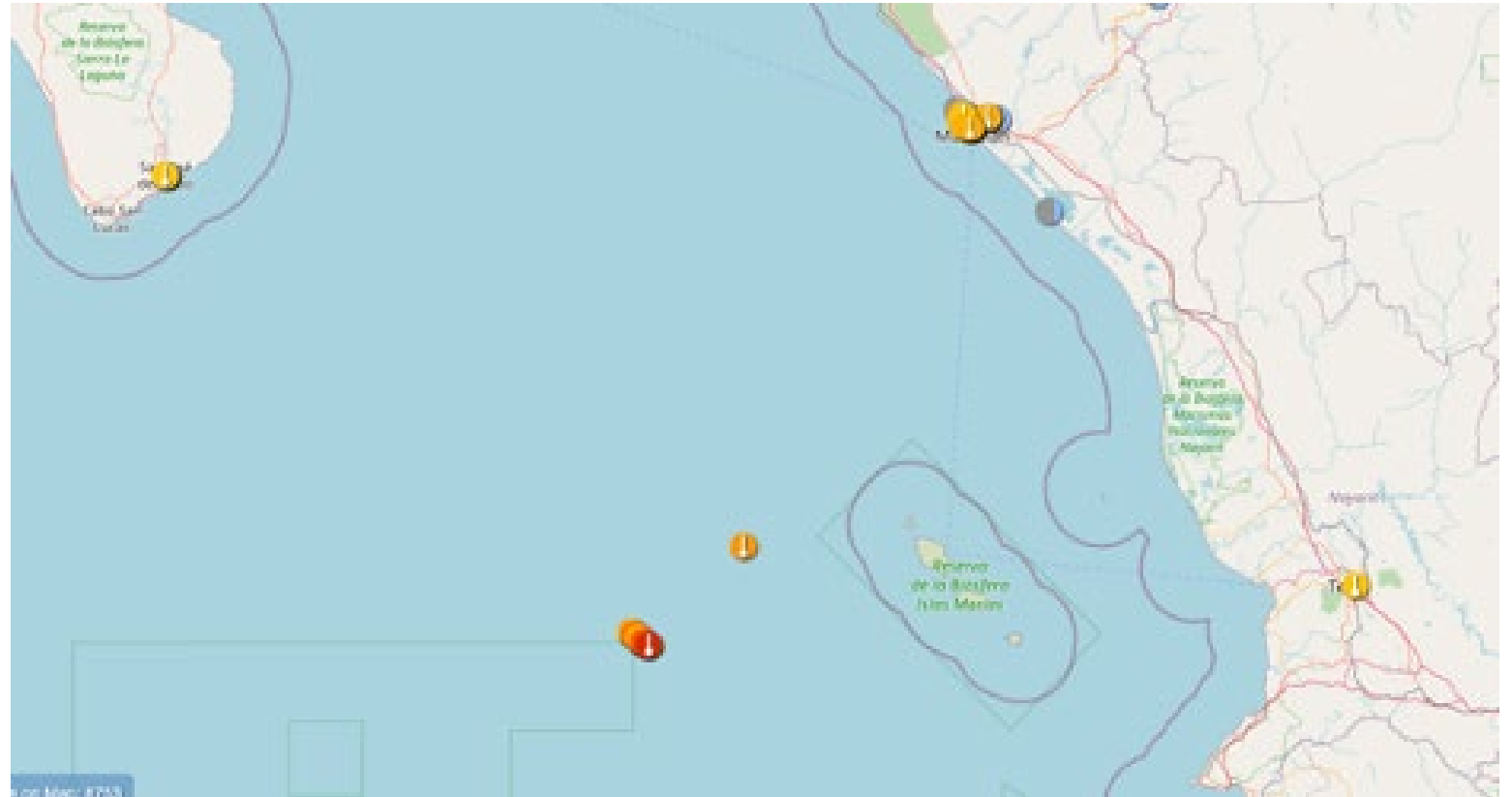


Dorian Janney/NASA & GLOBE

Various team members did interviews for TV news and the NASA broadcast.

GLOBE activities were part of numerous NASA SunSpot events, including this one for the annular eclipse at the Balloon Fiesta in Albuquerque, New Mexico

Dorian Janney worked with Texas Master Naturalists to help them lead programs and collect data for both the annular and total eclipses.



Jeremy Lewan, a meteorologist at WNEP in Central PA sent photos of the data collection setup he had on the M.S. Zaandam cruising off the coast of Mazatlán. Almost certainly the first observations we got in totality!



## Civil Air Patrol

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### CAP'S 2024 NASA GLOBE SOLAR ECLIPSE PROJECT

**PROGRAMS**




- Aerospace Education
- What's Happening
- Become A Member
- AE Programs
- Curriculum**
- Educational Products
- Lessons & Activity Resources
- Lesson and Activity Videos
- Links & Resources

**NASA Solar Eclipse Project Brings Special Science Opportunities**

On April 8, 2024, a solar eclipse crossed North America. To make the most of this rare astronomical event, Civil Air Patrol partnered with NASA's GLOBE Eclipse Project to give youth the opportunity to become Solar Eclipse Citizen Scientists, even outside the path of totality.



### Solar Eclipse Resources for Educators

Solar Eclipse Astronomy	Solar Eclipse Biology	Solar Eclipse Weather
 <p>Name: _____ Teacher: _____</p>	 <p>Name: _____ Teacher: _____</p>	 <p>Name: _____ Teacher: _____</p>
<p><b>Astronomy</b></p> <p>(3rd to 7th Graders)</p>	<p><b>Biology</b></p> <p>(3rd to 7th Graders)</p>	<p><b>Weather</b></p> <p>(3rd to 7th Graders)</p>
<p>Participating classrooms will focus on making observations about how the light and energy reaching Earth change over the course of a solar eclipse.</p>	<p>Participating classrooms will focus on making observations about how living things change their behavior during the solar eclipse. Students will make direct</p>	<p>Participating classrooms will focus on making observations about how changes in the amount of solar energy affect the weather. Students who</p>



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“I had so much fun taking part in the Solar eclipse mission. It was such an enjoyable learning experience looking at, classifying, and logging cloud data. I am extremely glad and thankful I was able to participate in this one-in-a-lifetime opportunity!”

“Supporting NASA as citizen scientist during the Solar Eclipse Mission has built on my prior interest in space, and shown me the possibilities for my future, where I hope to move towards designing rockets and other space materials for NASA and the US Space Force.”

“The solar eclipse mission was a great experience. It sparked my interest in space and science once again.”

