

The Earth Science Angle: Study eclipses as a volunteer observer with GLOBE

Energy from the Sun warms our planet, and changes in sunlight can also cause changes in temperature, clouds, and wind. What happens when the Sun is blocked by the Moon during an eclipse? How will the eclipse affect these solar-powered processes?

During an eclipse, you as a volunteer scientist are able to:

- Observe how the eclipse changes atmospheric conditions near you

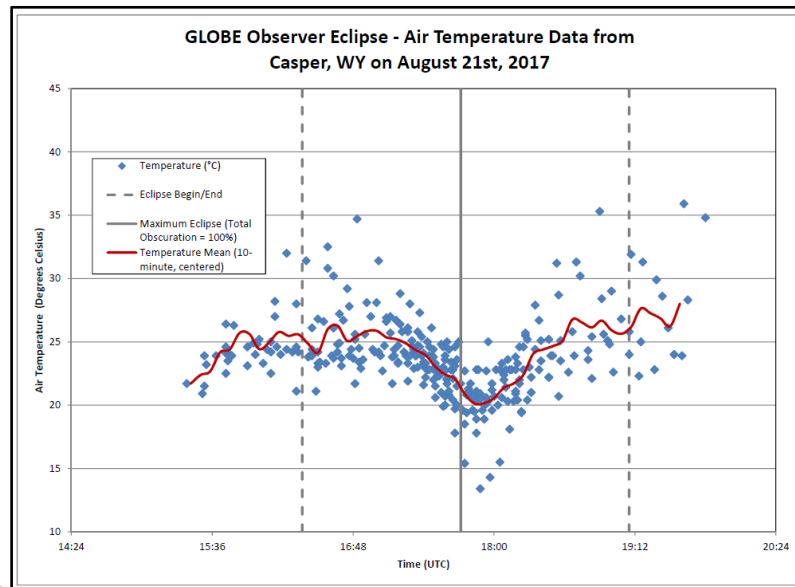
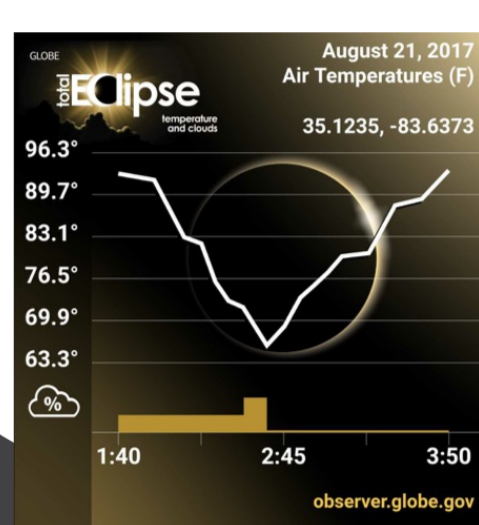
- Contribute to a citizen science database used by scientists and [students](#) to study the effects of eclipses on the atmosphere

- Dodson, J.B., Colón Robles, M., Taylor J.E., DeFontes, C.C., Weaver K.L., (2019). [Eclipse Across America: Citizen Science Observations of the 21 August 2017 Total Solar Eclipse](#). Journal of Applied Meteorology & Climatology, <https://doi.org/10.1175/JAMC-D-18-0297.1>
- Rahman, I. u., Czajkowski, K., Jiang, Y., & Weaver, K., (2019). [Validation of GLOBE Citizen Science Air Temperature Observations Using Data from the Great American Solar Eclipse](#). In S.R. Buxner, L. Shore, & J.B. Jensen (Eds.), Celebrating the 2017 Great American Eclipse: Lessons Learned from the Path of Totality (pp. 501-509). San Francisco: Astronomical Society of the Pacific Conference Series.

- Provide comparison data even if you are not in the path of maximum eclipse

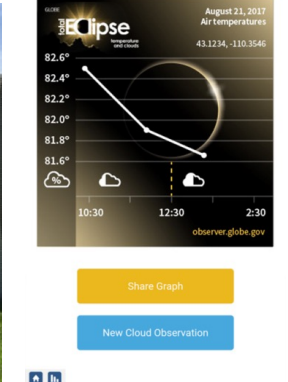
Far left: Example graph of data collected by a single observer via the GLOBE Observer app during the eclipse on 21 August 2017. (Credit: GLOBE)

Left: Aggregate data from volunteer scientists in Casper, WY on that date.



How can you help collect data?

- GLOBE Eclipse uses the platform of the [GLOBE Observer app](#), part of the long-standing [Global Learning and Observations to Benefit the Environment \(GLOBE\) Program](#). The tool is not visible in the app on a regular basis but is only opened up when a solar eclipse is happening somewhere in the world.
- The Eclipse tool will prompt you to take air temperature measurements using a meteorological thermometer, as well as taking regular observations of sky conditions using the [Clouds tool](#).
- For the eclipses in 2023 and 2024, we are also looking to add observations of wind speed and direction. Visit the [GLOBE Observer Eclipse](#) page for more details about equipment needed, how to take observations, and answers to frequently asked questions.



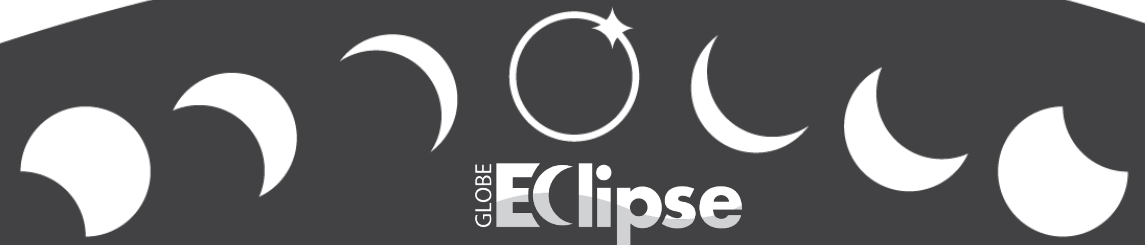
Top left: A mobile phone, solar viewing glasses, and a simple thermometer ready for observing the 2020 eclipse in Argentina. (Credit: Marta Kingsland) Right: The landing screen for the GLOBE Eclipse tool. Bottom left: Taking clouds observations with the GLOBE Observer app. (Credit: GLOBE Clouds Team at NASA LaRC)



THE GLOBE PROGRAM



GLOBE
Observer



Who can participate?

Anyone in a [GLOBE country](#) is able to collect data using the GLOBE Observer app.

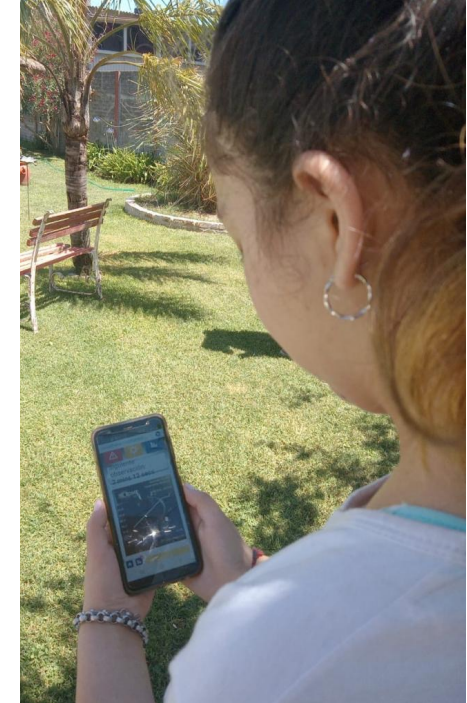
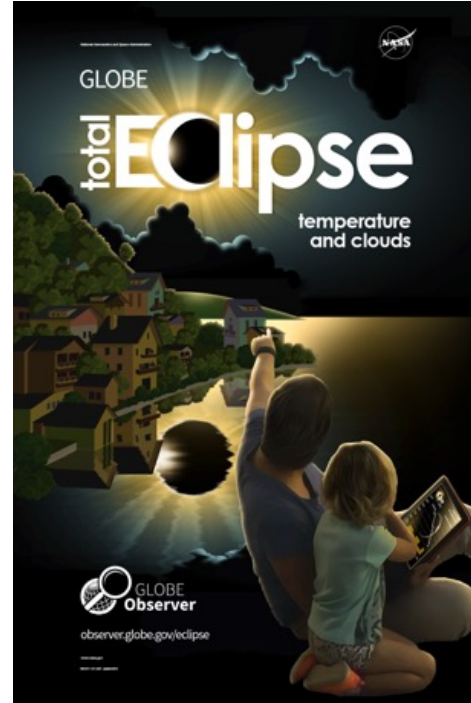
We encourage participation by:

- Interested individuals
- Families
- Schools
- [Informal educators hosting programs](#) at libraries, museums, nature centers, etc.



Above left: Students from GLOBE school Colegio Fasta Villa Eucarística in Córdoba, Argentina, observing the eclipse in July 2019. (Credit: Pablo Cecchi) Above right: Taking observations in Junín de los Andes, Argentina in December 2020. (Credit: Ana Prieto)

Below left: Poster created for the eclipse in 2017. (Credit: NASA/GLOBE) Below middle: An information table at an eclipse event in Carbondale, Illinois in August 2017. (Credit: NASA/GLOBE) Below right: Using the GLOBE Observer app during the eclipse in December 2020 (Credit: Marta Kingsland)



Questions? Visit the [GLOBE Observer Eclipse](#) page or [contact us](#) for more information.

