Dynamic Eclipse Broadcast Initiative

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The DEB Initiative Team:

- **invented, funded, executed** and **published scientific results of** the 2017 Citizen CATE Experiment.
- is a gender-balanced geographically diverse group of faculty, teachers, students and amateur astronomers.

The DEB Initiative is:

Faster: near real-time images available to the public and science community.

Better: wider field-of-view, more sensitive camera, sites outside path of totality, specific lead-in and follow-up science programs.

Cheaper: less than half the cost per site of our 2017 equipment (~$1800).

Good citizen science is published:

Birriel, J. & Teitloff, J.; 2022, "*Solar Coronal Flattening during the Total Solar Eclipse of August 2017 from CATE Data*", JAAVSO Volume 50, No. 2 pp. 1-3.

Penn & 286 co-authors; 2020, "*Acceleration of Coronal Mass Ejection Plasma in the Low Corona as Measured by the Citizen CATE Experiment*", PASP 132:014201.

Stockbridge, Z: 2019, "*Citizen Science With The Transit Of Mercury*", Sky & Telescope, October 2019.

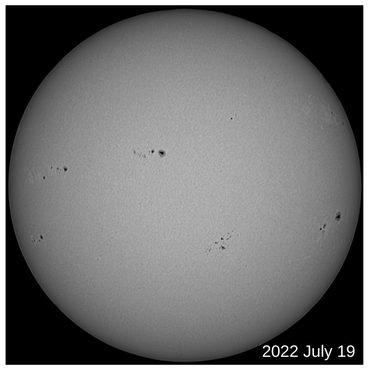
Zellem et al.; 2020, "*Utilizing Small Telescopes Operated by Citizen Scientists for Transiting Exoplanet Follow-up*", PASP 132 054401.

Our 2017 data is freely available at:

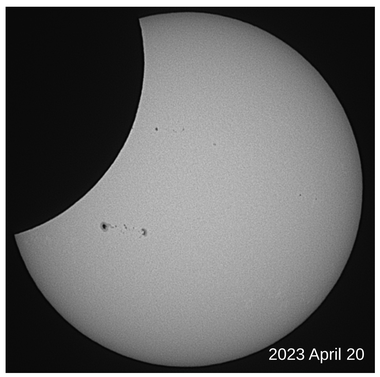
https://www2.physics.siu.edu/cate/

Heliophysics Citizen Science for the 2023 and 2024 Solar Eclipses and Beyond

DEB setup testing in Exmouth, Australia. 20 April 2023

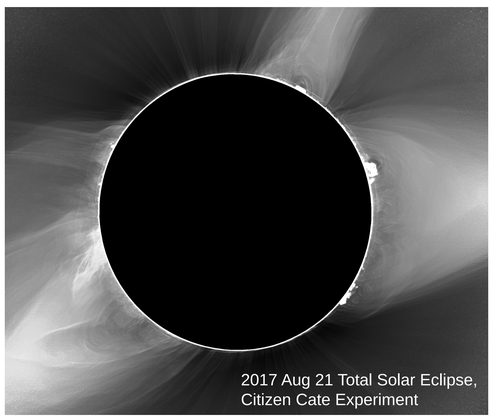


2022 July 19

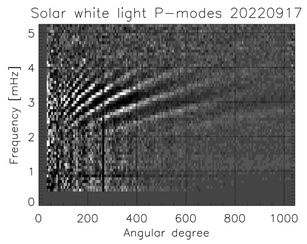


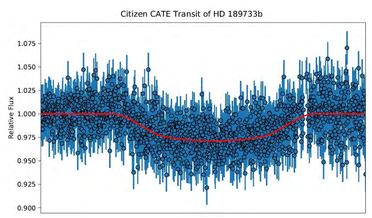
2023 April 20

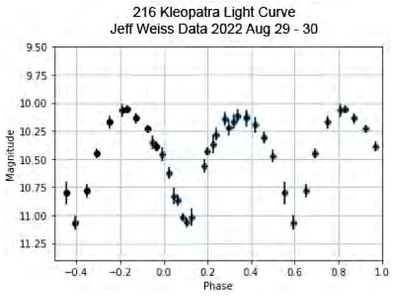
- Solar observations will be made to study oscillations and flares during the lead-in to ASE 2023 and TSE 2024.
- Exoplanet transits, asteroid and variable star light curves will be observed with +/-30 millimag errors.
- Lunar limb profile will be measured during ASE2023.
- Plasma acceleration in the corona will be measured in TSE2024, and correlated with disk activity from out-of-totality observing sites.
- Lunar eclipses will be measured to study variation in the Earth's shadow and to create 3-D movies.



2017 Aug 21 Total Solar Eclipse, Citizen Cate Experiment







Join the DEB Initiative!

We are seeking observation team leaders for sites both in and outside the path of totality in the US, Canada and Mexico.

Email: deb.initiative@gmail.com

We will train your team to:

- Observe with our COTS equipment package.
- Use community standard software such as SharpCap Pro and PlanetarySystemStacker.

All Team members participate in:

- Publications
- Observations
- Software Development
- Equipment Testing
- Data Analysis

Selected teams receive a complete imaging setup.

More information at:
https://debinitiative.org

SIU Southern Illinois University CARBONDALE

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