GLOBE Observer

GLOBE Clouds: Countdown to 1 Million Satellite Matches

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Global Learning and Observations to Benefit the Environment (GLOBE)

Sponsored by: NASA

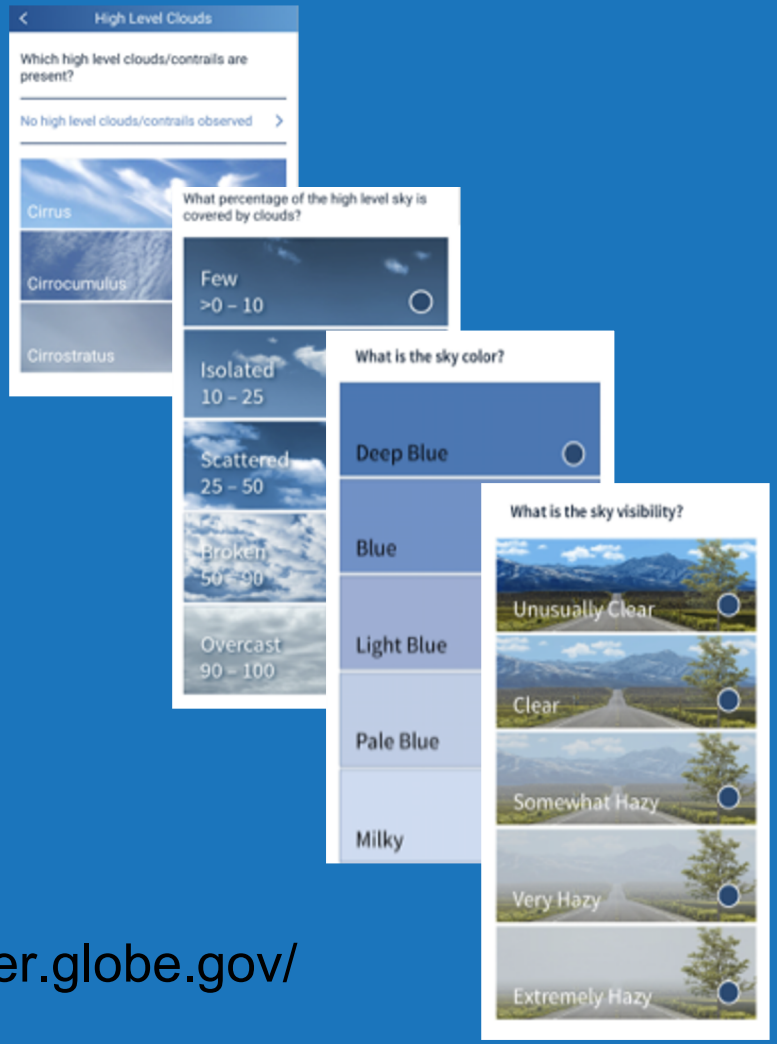
Supported by: NOAA NSF

Implemented by: UCAR

Clouds Tool

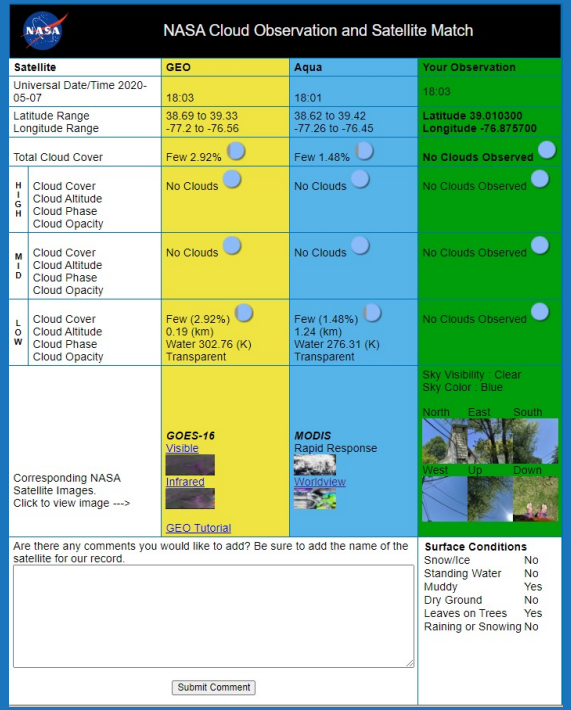
Steps to observe:

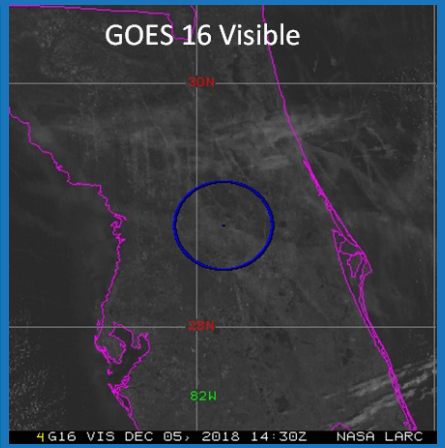
- Overall cloud cover
- Sky conditions
- Cloud types, cloud cover, and opacity by height
- Take photos

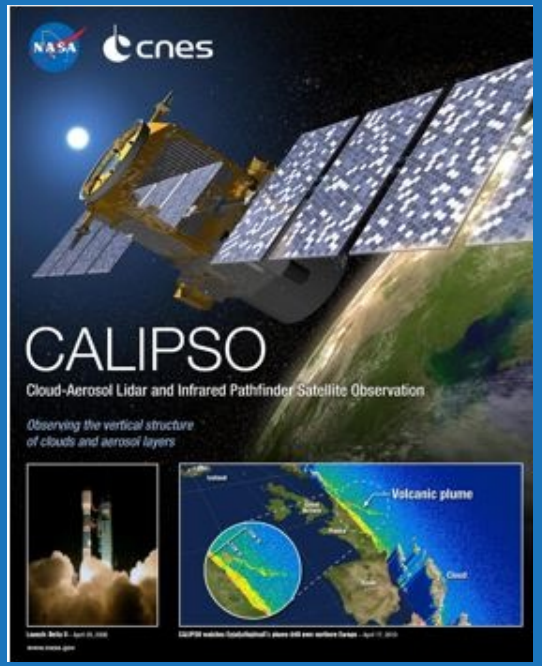


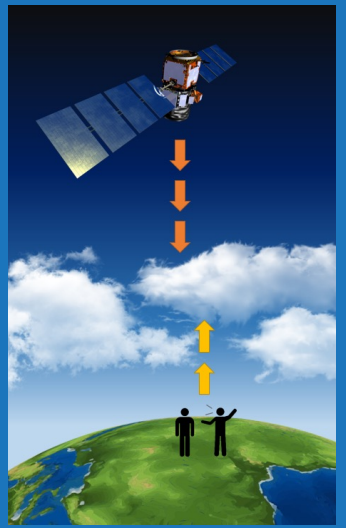
https://observer.globe.gov/

Cloud Observations Matched to Satellite Data









GLOBE Clouds team sends ~3-5 thousand emails per month to the citizen science community.

Research Paper Accepted

Title: Do citizen science Intense Observation Periods increase data usability? A deep dive of the NASA GLOBE Clouds data set with satellite comparisons

AGU Earth and Space Science

Led by Brant Dodson

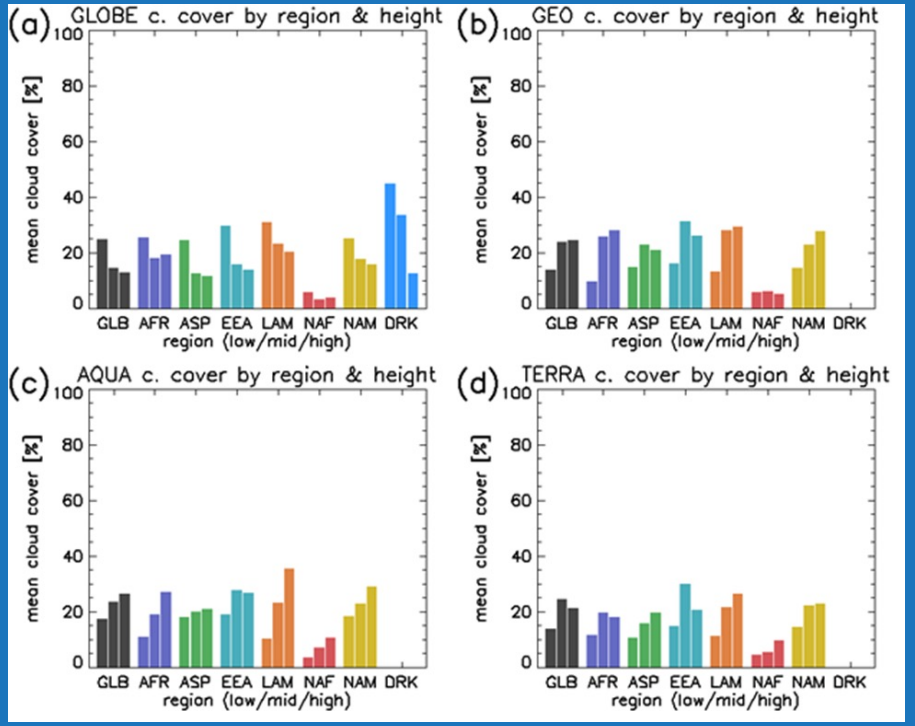
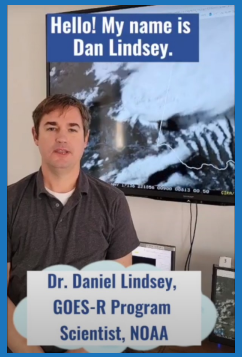
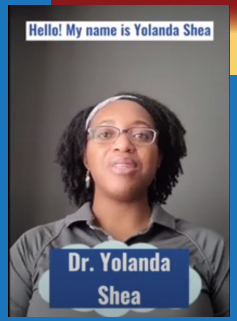
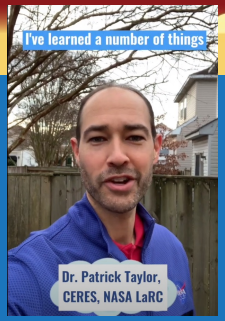


Figure 4. Mean cloud cover by altitude and region for the combined SCC18 and FCC19 datasets. (a) is from GLOBE citizen scientist reports, (b) is from collocated geostationary satellite cloud retrievals, (c) is from Aqua, and (d) is from Terra. The three bars for each region represent the mean cloud cover for each altitude; left to right is low, middle, and high clouds.

Cloud Challenge 2022: Clouds in a Changing Climate

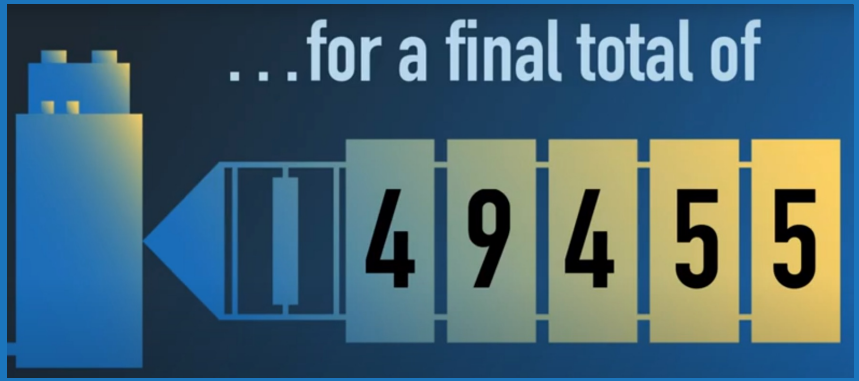






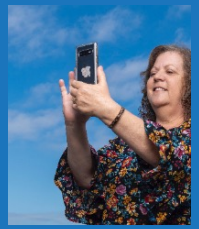
January 15 – February 15, 2022

- 42,703 ground-cloud observations
- Over 3,600 participants
- 89 countries on all 7 continents
- 49,455 satellite matches



NASA GLOBE CLOUD GAZE – Since April 2021

PI - Marilé Colón Robles



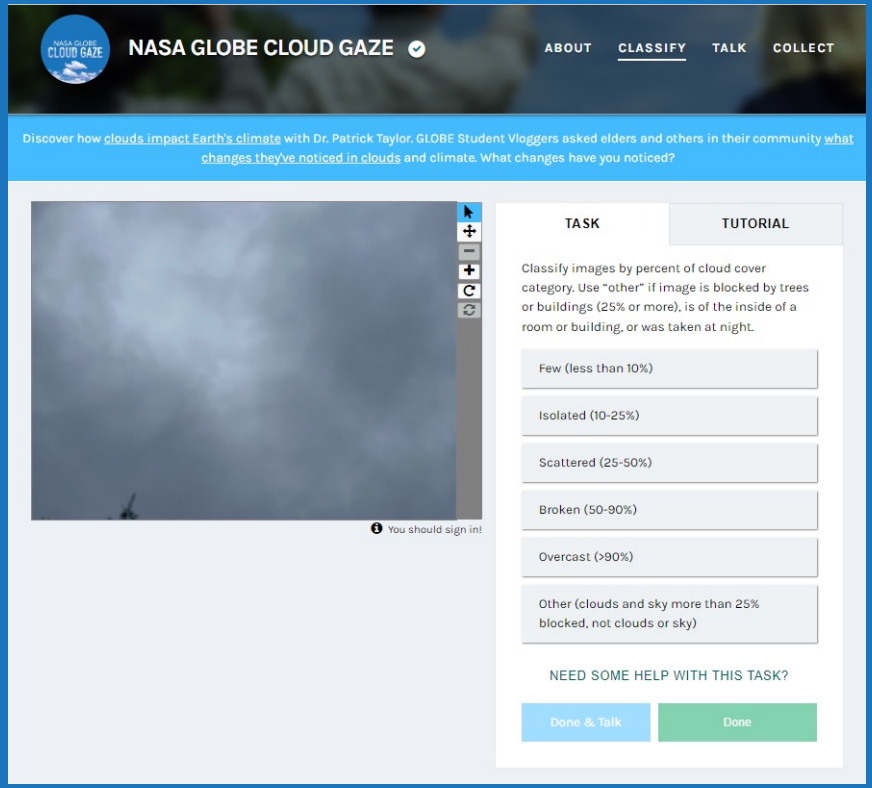
CoPI & Data Manager - Tina Rogerson

- New citizen science project funded through NASA's CSESP in collaboration with the Zooniverse online citizen science platform.
- Analyzing GLOBE Cloud sky photographs identify cloud cover and cloud types.
- Over 200,000 photographs tagged with geolocated ground-cloud reports and satellite data.

https://www.zooniverse.org/projects/nasaglobe/nasa-globe-cloud-gaze

NASA GLOBE CLOUD GAZE

- Average of 15,000 classifications per day.
- Most active project on Zooniverse across all disciplines.
- Tags per image of cloud mass and cloud type.
- July 2022 – submission of **Phase 2 of proposal**: collaborations with U. of Vermont & U. of Maryland to use images in ***AI/ML work and developing cloud type climatologies.***



One Million Satellite Matches (2017-2022)

- Up to 947,000+ satellite matches.
- One Million **matches possible by mid July 2022**.

Updates:
April 2022, the team led a modernization of satellite data matching code.

- Hourly FLASHFlux SSF data
- Extended matching window +/- 15:59.9 and can now extend to next day
  (example: 1/1/2022 23:50 – 1/2/2022 00:05 UTC)