GLOBE Observer

GLOBE Clouds:
1 Million Matches and Counting

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Accomplishments and Upcoming Opportunities

- NASA Group Achievement Award for Science Activation
- Addition of NOAA-20 to satellite match process
- Match to a Million Celebration
- Student presentation at AGU
- Arctic and Antarctic data available
- Solar eclipses 2023 and 2024

https://observer.globe.gov/get-data/clouds-data

Science Activation – Overachieved Broadening Participation Goal for Learners of All Ages in 2022!

Over 50M Learners Reached in 2022!
Up from 21M in 2021

($ in K's)	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Science Activation FY 2024 Request	$52,000	$55,600	$55,600	$55,600	$55,600	$55,600	$55,600

Strategic Objective - Enable NASA science experts and content to engage more effectively and efficiently with learners of all ages (K to Gray)

Major Activities

- Each award has an independent evaluator and entire program has portfolio-level independent evaluation team
- All 36 competed projects have broadening participation:
  - Native American nations in OK, AK, NM, NC, ME
  - Undergraduate students at MSIs, including Puerto Rico
  - Underserved HS students
  - Neurodiverse learners
  - People who are blind or have low vision
  - Learners with physical disabilities
  - Community College students
- 9 projects with Earth systems, and/or Earth data focus. GLOBE Observer App doubled GLOBE reach since 2016!
- 8 projects with a Space science focus
- 4 projects focused on Subject Matter Expert (SME) engagement

Global Learning and Observations to Benefit the Environment (GLOBE)

Sponsored by: NASA

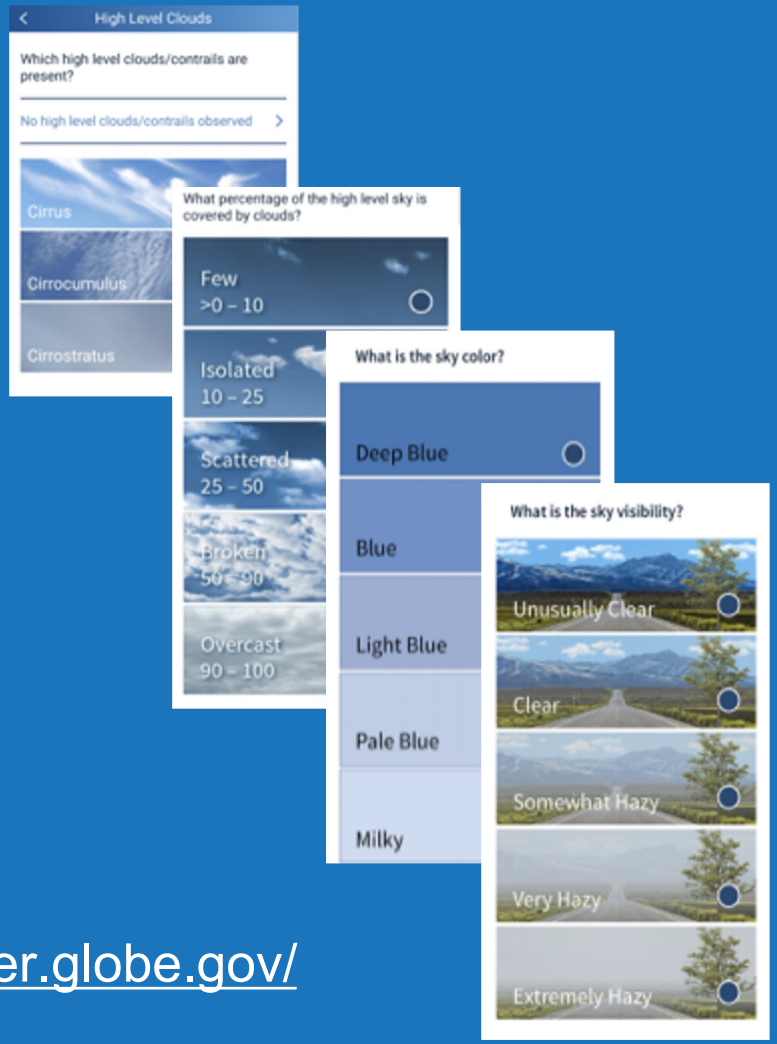
Supported by: NOAA NSF

Implemented by: UCAR

Clouds Tool

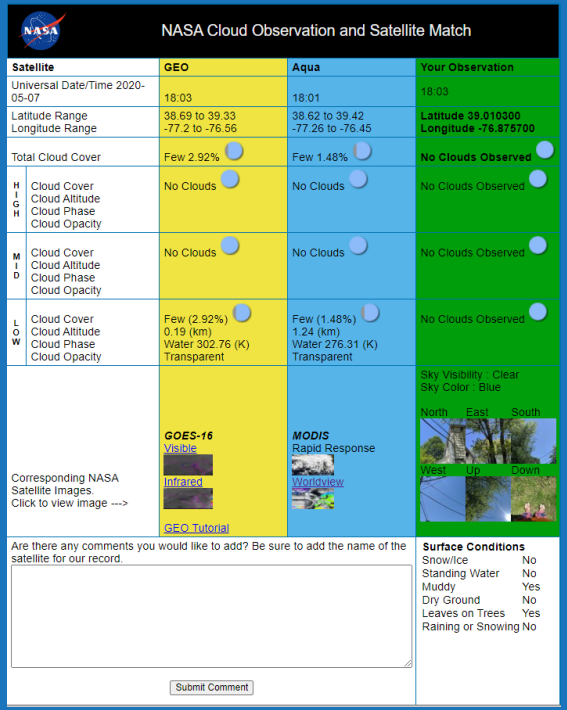
Steps to observe:

- 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


NASA Cloud Observation and Satellite Match

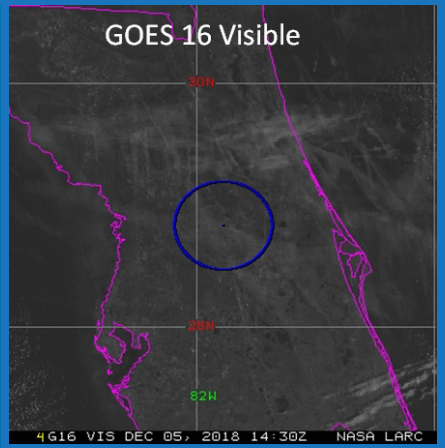
Satellite	GEO	Aqua	Your Observation
Universal Date/Time 2020-05-07	18:03	18:01	18:03
Latitude Range Longitude Range	38.69 to 39.33 -77.2 to -76.56	38.62 to 39.42 -77.26 to -76.45	**Latitude 39.010300** **Longitude -76.875700**
Total Cloud Cover	Few 2.92%	Few 1.48%	**No Clouds Observed**
HIGH: Cloud Cover Cloud Altitude Cloud Phase Cloud Opacity	No Clouds	No Clouds	No Clouds Observed
MID: Cloud Cover Cloud Altitude Cloud Phase Cloud Opacity	No Clouds	No Clouds	No Clouds Observed
LOW: Cloud Cover Cloud Altitude Cloud Phase Cloud Opacity	Few (2.92%) 0.19 (km) Water 302.76 (K) Transparent	Few (1.48%) 1.24 (km) Water 276.31 (K) Transparent	No Clouds Observed
Corresponding NASA Satellite Images. Click to view image --->	***GOES-16*** Visible Infrared GEO Tutorial	***MODIS*** Rapid Response Worldview	Sky Visibility : Clear Sky Color : Blue North East South West Up Down

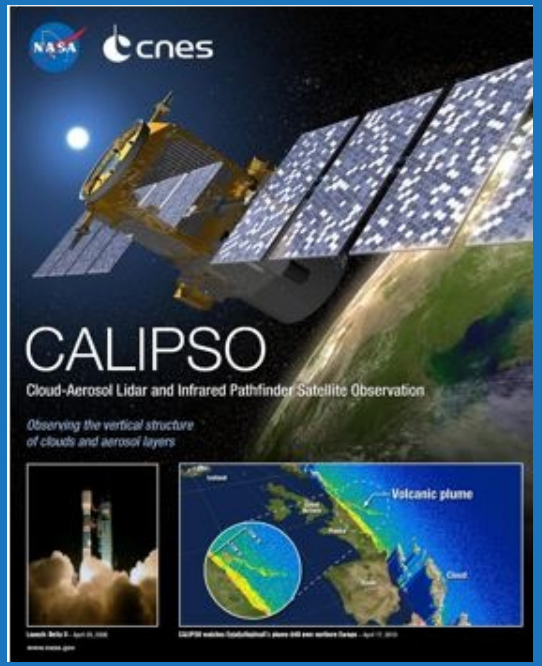
Are there any comments you would like to add? Be sure to add the name of the satellite for our record.

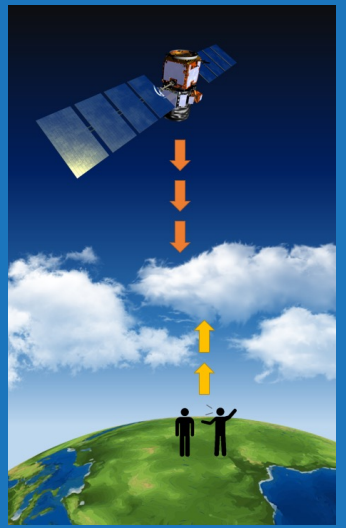
Submit Comment

Surface Conditions

Snow/Ice	No
Standing Water	No
Muddy	Yes
Dry Ground	No
Leaves on Trees	Yes
Raining or Snowing	No







GLOBE Clouds team sends ~3-5 thousand emails per month
sharing mission data and imagery to the citizen science community.

Match to a Million Celebration - 13 September 2022

We celebrated with students, educators, and citizen scientists from all over the country and the world.

Satellite Matches by the Numbers and Addition of NOAA-20 2017 to current

Satellite	Total Satellite Matches	NASA LaRC Team Support
GEO Satellite Matches GOES, Himawari, METEOSAT	852,489	SatCORPS
SSF Satellite Matches • Terra – 144,612 • Aqua – 147,612 • NOAA-20 – 11,345	303,569	CERES Flash Flux
Total (2017 – Current)	1,156,058	

GLOBE Cloud Observations: 1,302, 502

Observations with images: 436, 878

Total Images: 2,121,968 (each cardinal direction, upward, and downward)

AGU 2022 Student Presentation

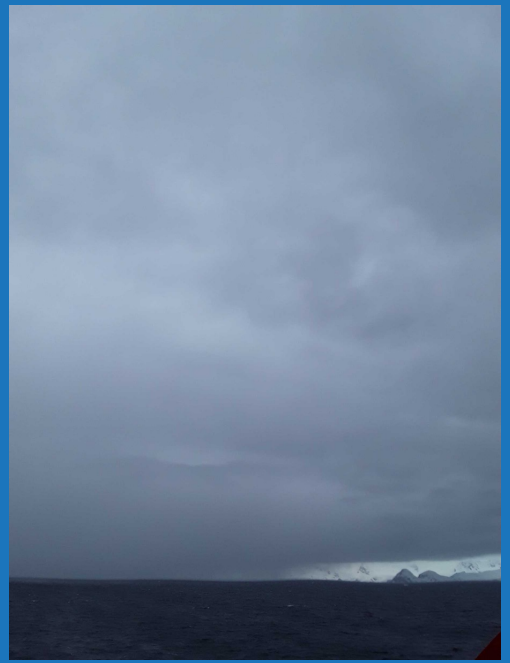
Title: Exploring Multiple Ways of Studying Clouds for Blind and Sighted Students Alike

Presenter: Naudia Graham (pictured), high school student.

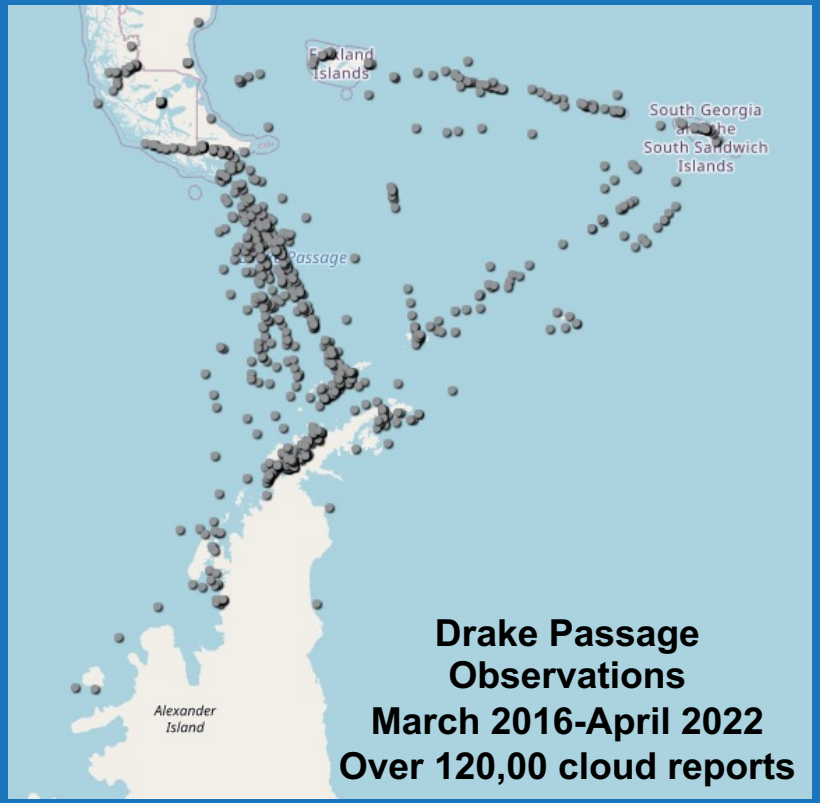
Session: ED41A-08
Bright STaRS: Bright Students Training as Research Scientists

https://agu.confex.com/agu/fm22/meetingapp.cgi/Paper/1059944

Arctic and Antarctica Data Available



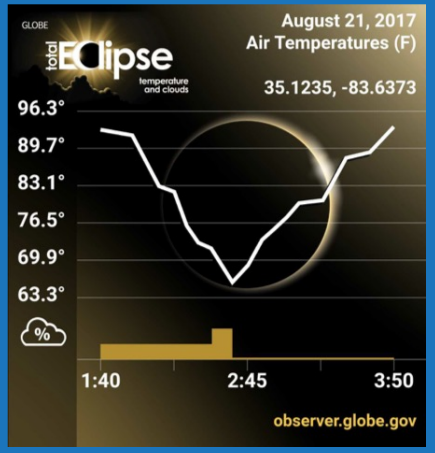
Norway Citizen Science
2021-11-30 19:35:00



Drake Passage
Observations
March 2016-April 2022
Over 120,00 cloud reports

Solar Eclipses 2023 and 2024 Data Collection

14 October 2023 (annular) and 8 April 2024 (total)



*Collect air temperature, cloud, surface temperature before and after maximum.

**Dodson et al., 2019, Eclipse Across America: Citizen Science Observations of the 21 August 2017 Total Solar Eclipse https://doi.org/10.1175/JAMC-D-18-0297.1