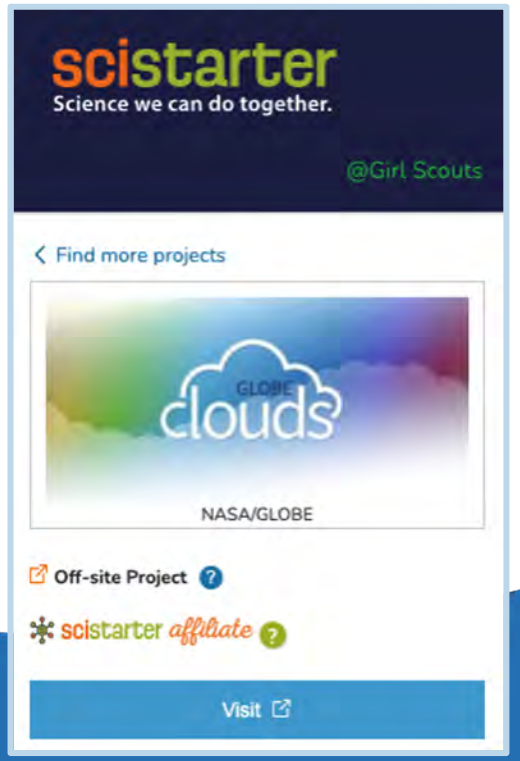
&

GLOBE Observer



GLOBE clouds

Girl Scouts and GLOBE Observer

The *Global Learning and Observations to Benefit the Environment (GLOBE) Program* is an international science and education program that provides students and the public worldwide with the opportunity to participate in data collection and the scientific process and contribute meaningfully to our understanding of the Earth system and global environment.

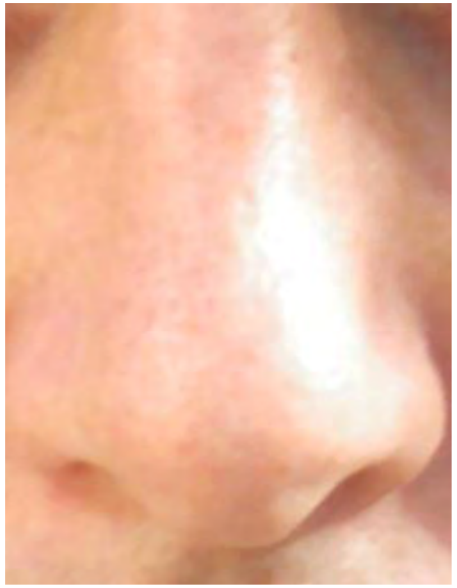
The *GLOBE Observer* app is a GLOBE's data entry tool that allows an international network of citizen scientists to work together to learn more about our shared environment and changing climate. *GLOBE Observer* currently accepts observations of Clouds, Mosquito Habitats, Land Cover and Trees.

GLOBE clouds

NASA GLOBE and Girl Scouts

GLOBE Observer Trees Tool: Think Like a Citizen Scientist

Hear



Smell

Touch

See

Taste

GLOBE clouds

What's an Observation?

Observations:

- ❑ What you notice?
- ❑ Could you see anything change?
- ❑ Did you hear anything?
- ❑ Did you feel anything?
- ❑ Did you smell anything?

https://youtu.be/5kjrPUP9X1g

GLOBE clouds

Demo Time! Cloud in a Bottle

What does a Scientist Do?

GLOBE clouds

Press Pause while you discuss.

What does a Scientist Do?

GLOBE clouds

What does a Scientist Do?

1. Observe
2. Ask a Question
3. Make a Hypothesis

GLOBE clouds

Press Pause while you discuss.

GLOBE clouds

Ask a Question

??????????????????

GLOBE clouds

Ask a Question

What happens when pressure decreases abruptly inside a closed container with water vapor?

Question: What happens when pressure decreases abruptly inside a closed container with water vapor?

Hypothesis: When pressure decreases, the temperature decreases and a cloud will form.

GLOBE clouds

Make a Hypothesis

Answer your question based on observations

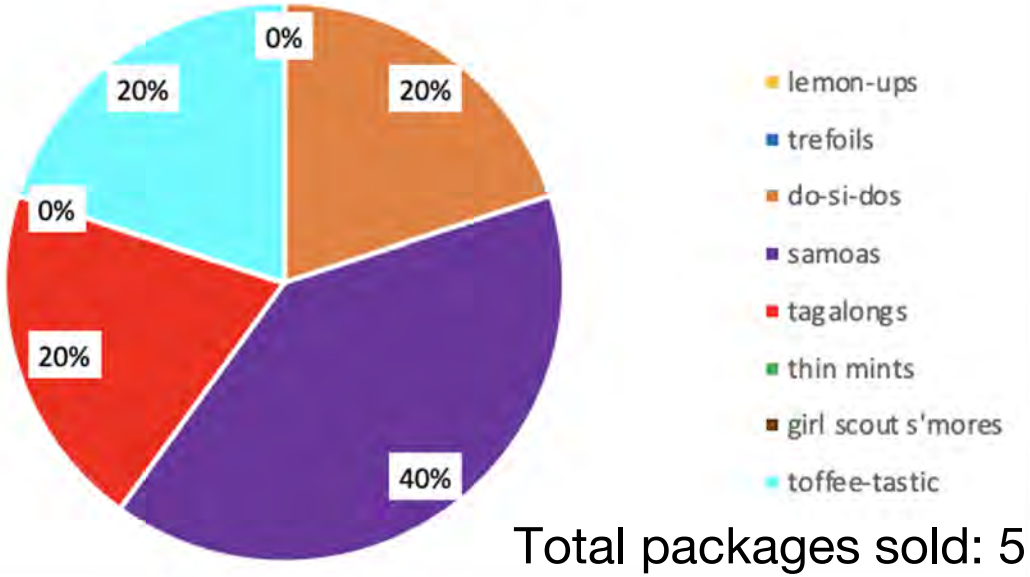
How do scientists know if their hypothesis is correct?

Collect and Analyze Data

Collect and Analyze Data

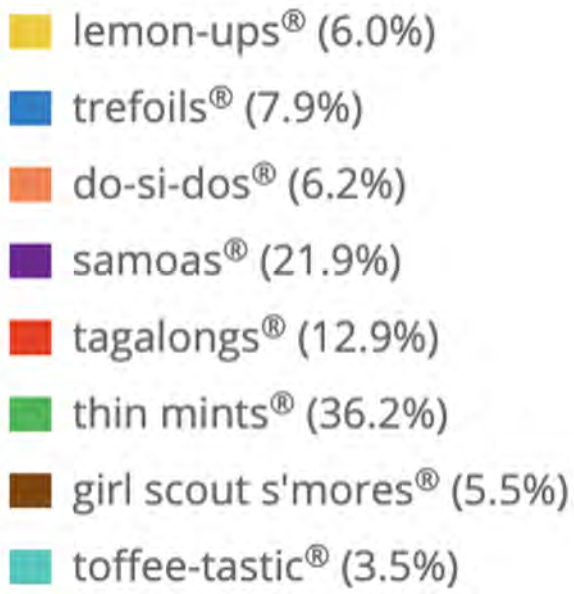
Girl Scout Cookie Sales

Single Sale

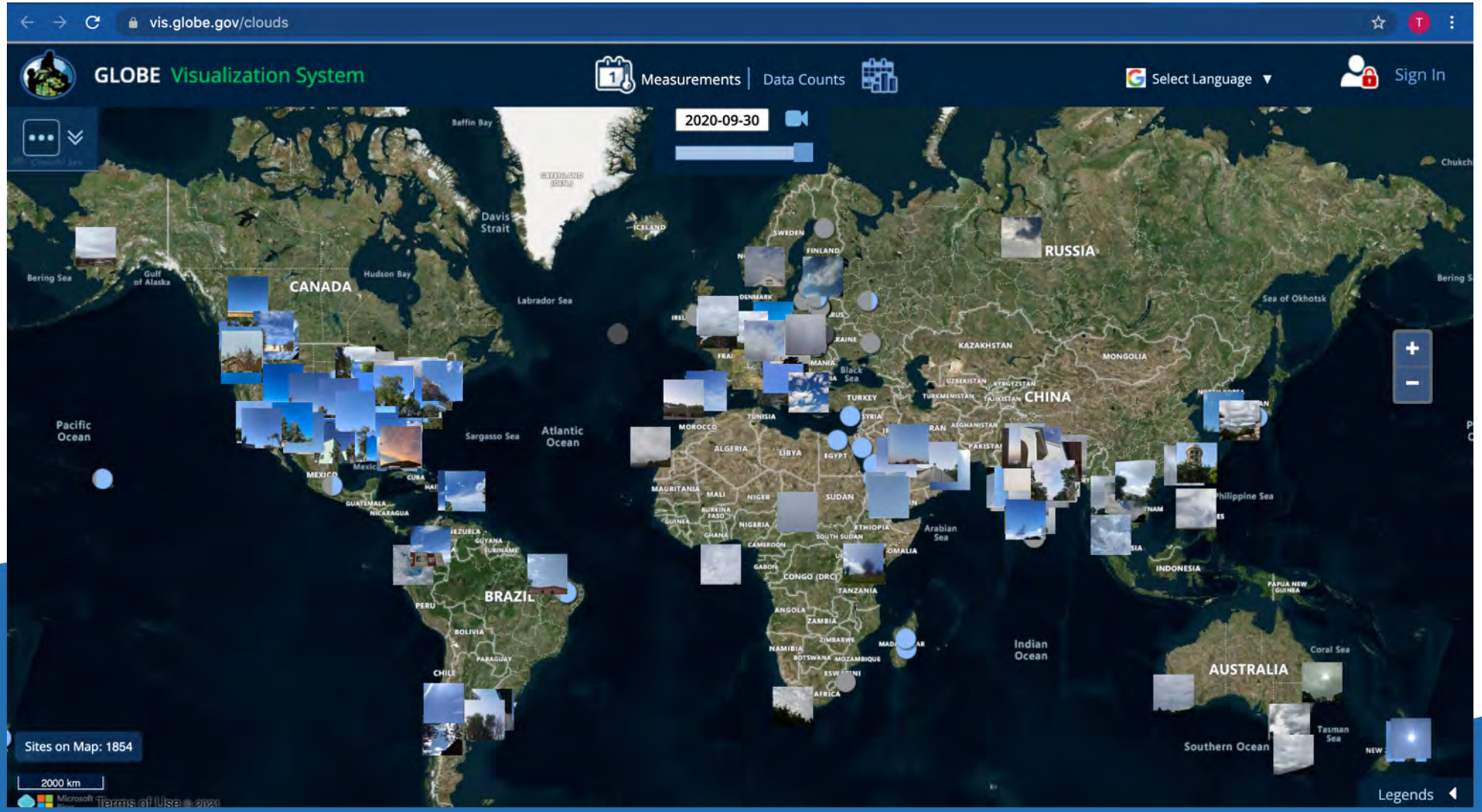


Total packages sold: 5

Troop Sales



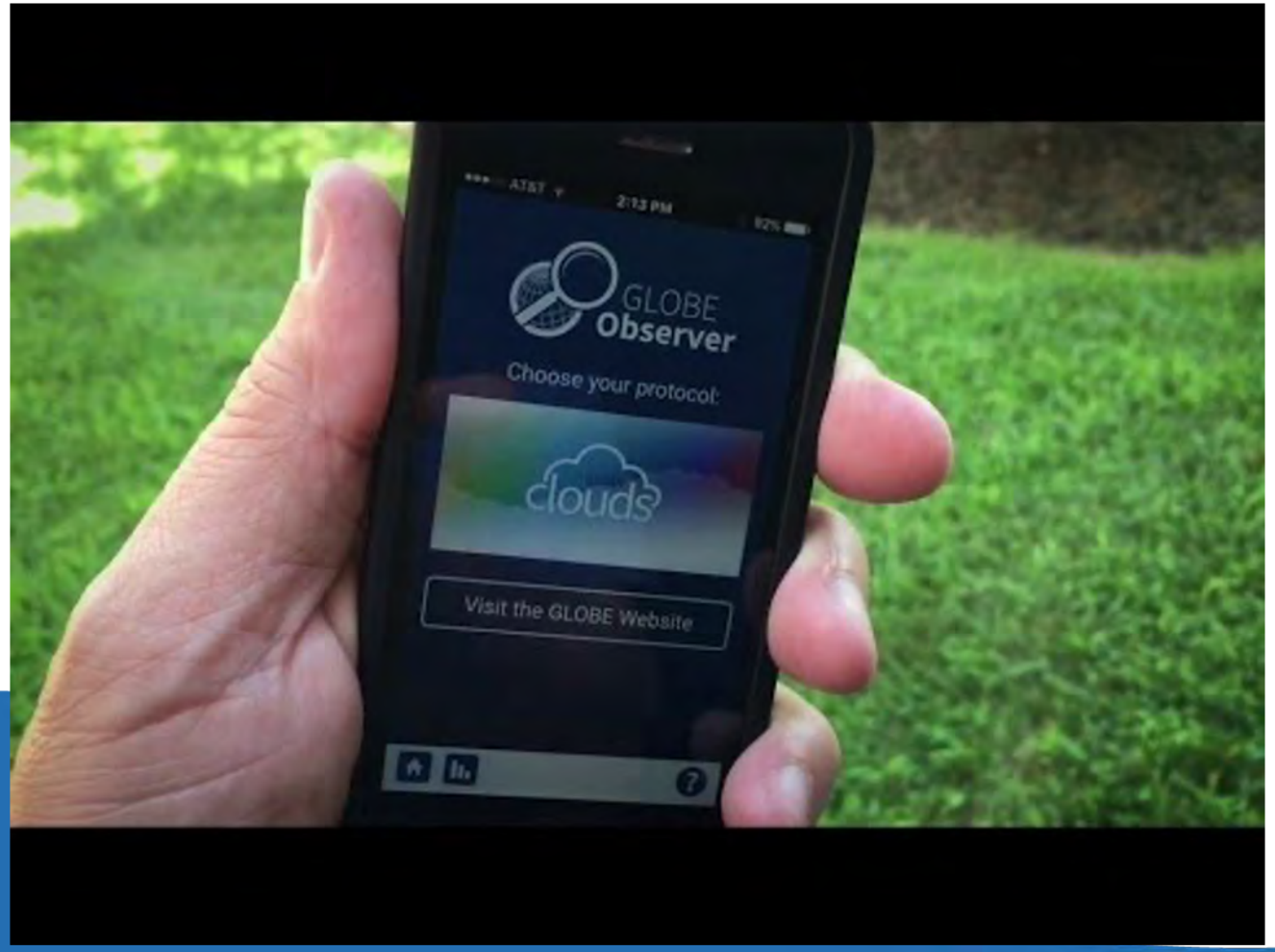
Total packages sold: 1,559



GLOBE clouds

Clouds Data

https://vis.globe.gov/clouds



GLOBE clouds

Introducing GLOBE Observer

https://youtu.be/DQ58q-5yUGw

GLOBE clouds

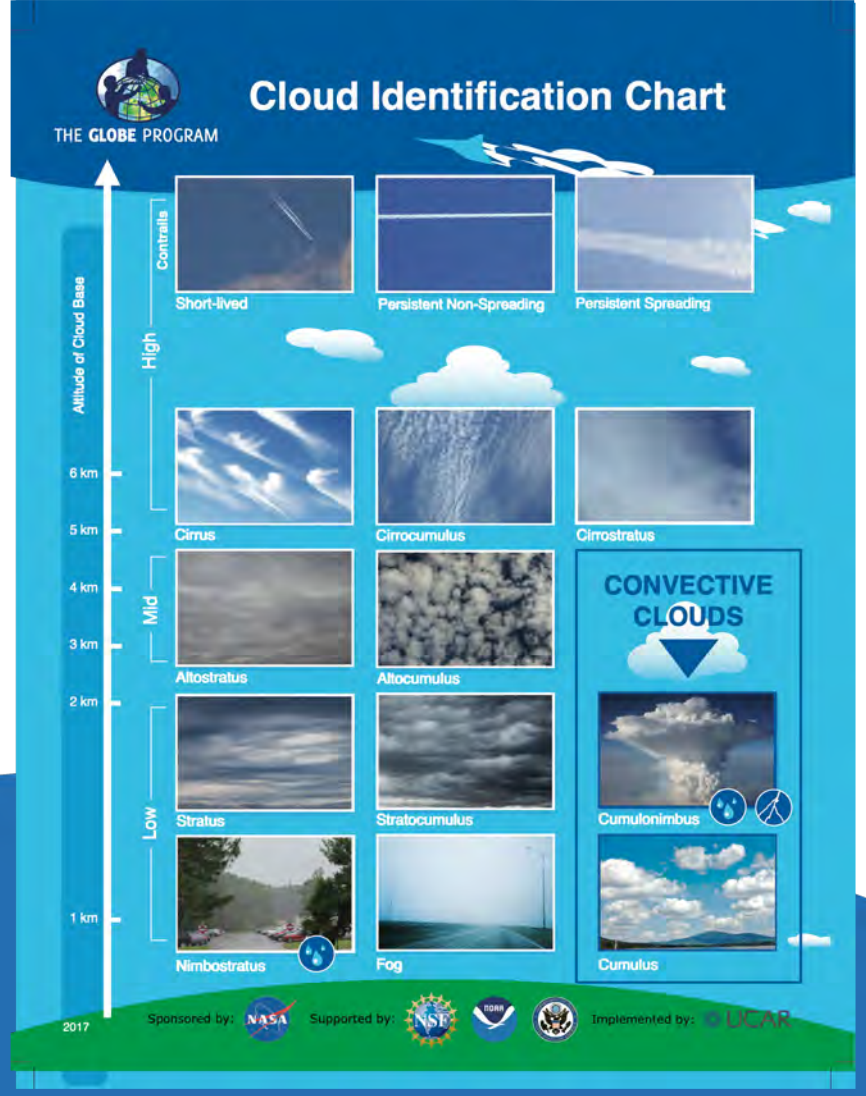
GLOBE Observer Cloud Science

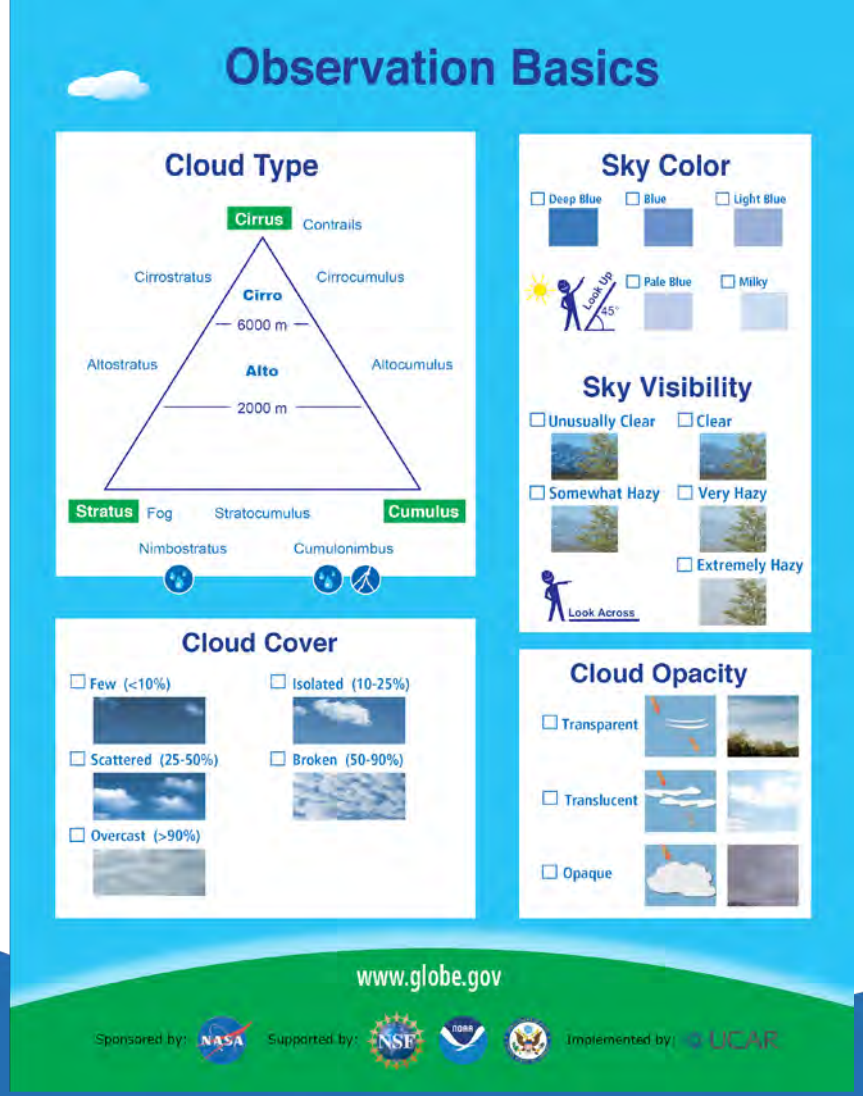
https://youtu.be/TNc5qjj8ZZE

GLOBE clouds

GLOBE Observer Cloud Activities

https://youtu.be/vpYXh3xHoS4





GLOBE clouds

GLOBE Observer

Cloud Classification Challenge

Instructions

1) Each slide will show you a picture in the “window” of the Cloud Window Viewer.
2) Use the viewer to identify which type of cloud is in the window.
3) Write down your answers on a piece of paper.
4) After all 8 photos, continue watching the video to see how many you got right?

Links to helpful tools to identify clouds:

Cloud Window Viewer

Cloud identification Chart

GLOBE clouds

GLOBE Observer

Cloud Classification Challenge

1.

High-level Clouds

Cirrus

Cirrostratus

Cirrocumulus

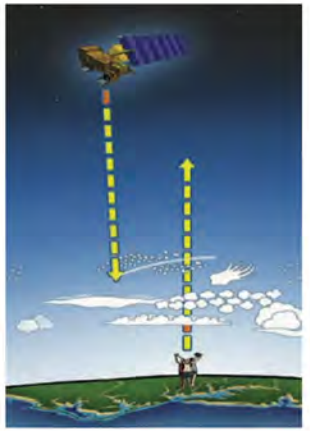
Contrails

When observing the sky, never look directly at the sun!

Mid-level Clouds

Altostratus

Altocumulus



Your reports from the ground looking up help NASA better understand our atmosphere and the views from the satellite looking down.

Low-level Clouds

Cumulus

Stratus

Stratocumulus

Low-level Precipitating Clouds

Nimbostratus

Cumulonimbus

NP-2018-04-061-LARC

2.

High-level Clouds


Cirrus


Cirrostratus


Cirrocumulus


Contrails

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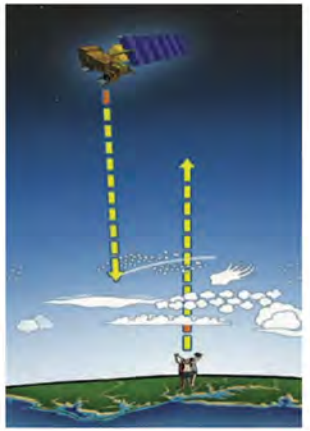
Mid-level Clouds


Altostratus


Altocumulus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Low-level Clouds


Cumulus


Stratus


Stratocumulus

Low-level Precipitating Clouds


Nimbostratus


Cumulonimbus

NP-2018-04-061-LARC

3.

High-level Clouds

Cirrus

Cirrostratus

Cirrocumulus

Contrails

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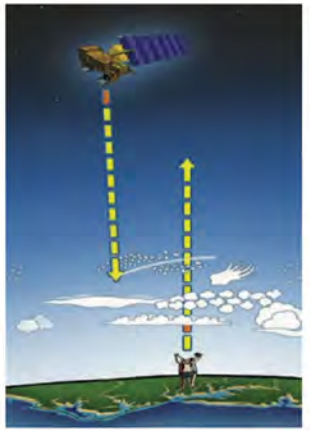
Mid-level Clouds

Altostratus

Altocumulus



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Low-level Clouds

Cumulus

Stratus

Stratocumulus

Low-level Precipitating Clouds

Nimbostratus

Cumulonimbus

NP-2018-04-061-LARC

4.

High-level Clouds

Cirrus

Cirrostratus

Cirrocumulus

Contrails

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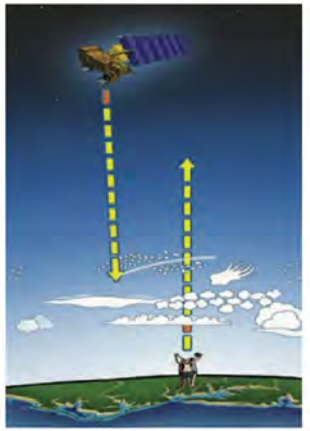
Mid-level Clouds

Altostratus

Altocumulus



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Low-level Clouds

Cumulus

Stratus

Stratocumulus

Low-level Precipitating Clouds

Nimbostratus

Cumulonimbus

NP-2018-04-061-LARC

5.

High-level Clouds


Cirrus


Cirrostratus


Cirrocumulus

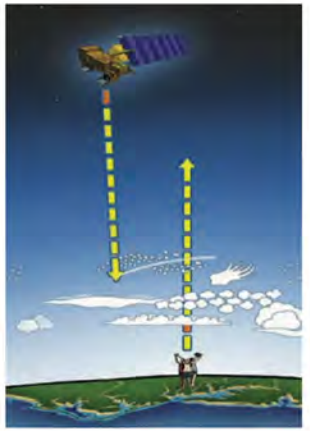

Contrails

When observing the sky, never look directly at the sun!

Mid-level Clouds


Altostratus


Altocumulus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Low-level Clouds


Cumulus


Stratus


Stratocumulus

Low-level Precipitating Clouds


Nimbostratus


Cumulonimbus

NP-2018-04-061-LARC

6.

High-level Clouds

Cirrus

Cirrostratus

Cirrocumulus

Contrails

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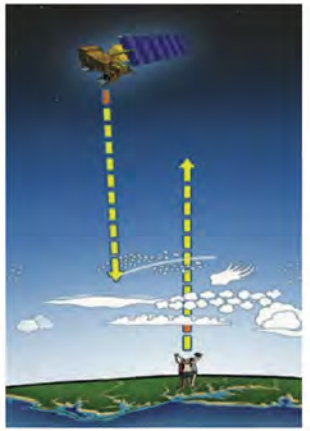
Mid-level Clouds

Altostratus

Altocumulus



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Low-level Clouds

Cumulus

Stratus

Stratocumulus

Low-level Precipitating Clouds

Nimbostratus

Cumulonimbus

NP-2018-04-061-LARC

7.

High-level Clouds

Cirrus

Cirrostratus

Cirrocumulus

Contrails

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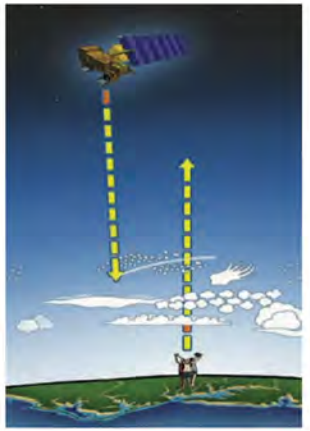
Mid-level Clouds

Altostratus

Altocumulus



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Low-level Clouds

Cumulus

Stratus

Stratocumulus

Low-level Precipitating Clouds

Nimbostratus

Cumulonimbus

NP-2018-04-061-LARC

8.

High-level Clouds

Cirrus

Cirrostratus

Cirrocumulus

Contrails

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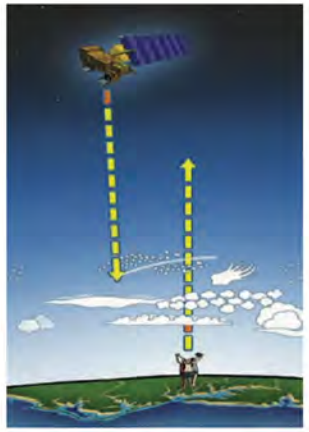
Mid-level Clouds

Altostratus

Altocumulus



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Low-level Clouds

Cumulus

Stratus

Stratocumulus

Low-level Precipitating Clouds

Nimbostratus

Cumulonimbus

NP-2018-04-061-LARC

And the ANSWERS are...

GLOBE clouds

GLOBE Observer
Cloud Classification Challenge

1.

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Cirrus


Cirrostratus


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Mid-level Clouds


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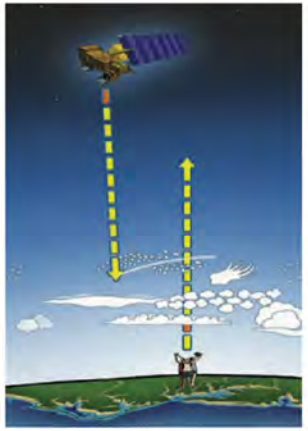
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Low-level Clouds


Cumulus


Stratus


Stratocumulus

Low-level Precipitating Clouds


Nimbostratus


Cumulonimbus

2.

High-level Clouds


Cirrus


Cirrostratus


Cirrocumulus


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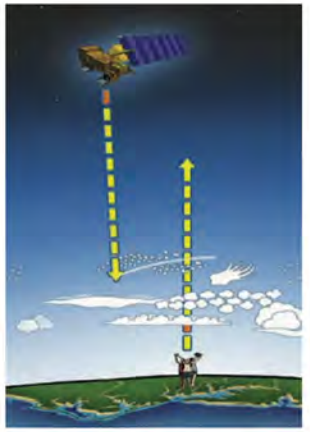
Mid-level Clouds


Altostratus


Altocumulus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Low-level Clouds


Cumulus


Stratus


Stratocumulus

Low-level Precipitating Clouds


Nimbostratus


Cumulonimbus

3.

High-level Clouds


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Cirrocumulus


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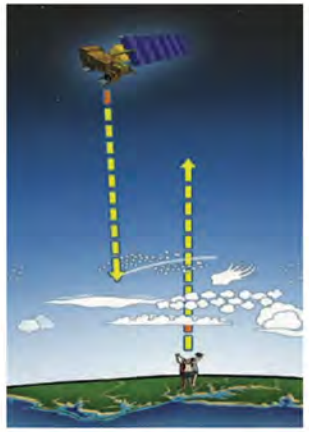
Altostratus


Altocumulus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Low-level Clouds


Cumulus


Stratus


Stratocumulus

Low-level Precipitating Clouds


Nimbostratus


Cumulonimbus

NP-2018-04-061-LARC

4.

High-level Clouds

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Cirrostratus

Cirrocumulus

Contrails

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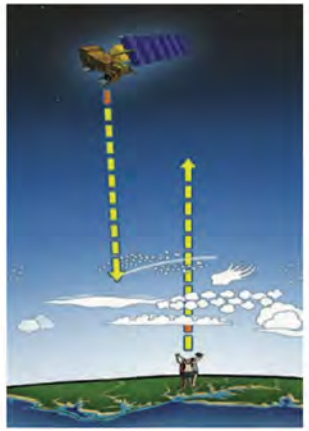
Mid-level Clouds

Altostratus

Altocumulus



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Low-level Clouds

Cumulus

Stratus

Stratocumulus

Low-level Precipitating Clouds

Nimbostratus

Cumulonimbus

5.

High-level Clouds


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Cirrostratus


Cirrocumulus


Contrails

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Mid-level Clouds


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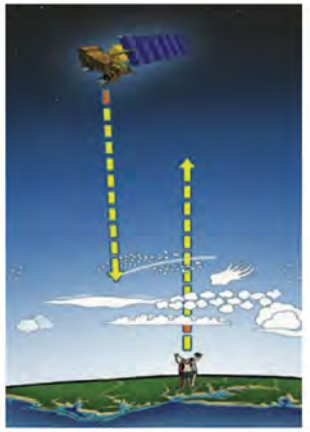
Altocumulus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Low-level Clouds


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Stratus


Stratocumulus

Low-level Precipitating Clouds


Nimbostratus


Cumulonimbus

6.

High-level Clouds


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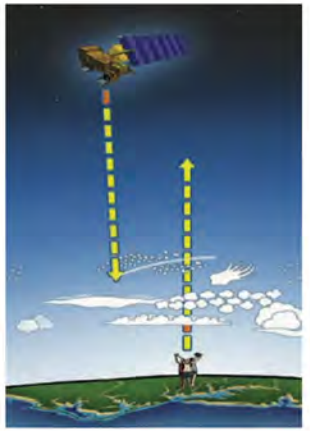
Altocumulus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Low-level Clouds


Cumulus


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Stratocumulus

Low-level Precipitating Clouds


Nimbostratus


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NP-2018-04-061-LARC

7.

High-level Clouds


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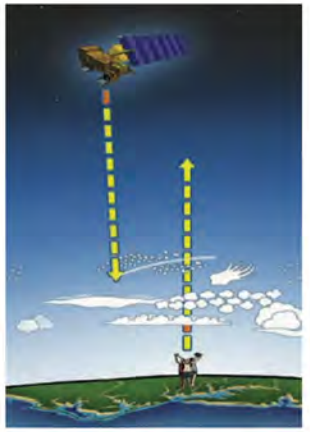
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Low-level Clouds


Cumulus


Stratus


Stratocumulus

Low-level Precipitating Clouds


Nimbostratus


Cumulonimbus

8.

High-level Clouds


Cirrus


Cirrostratus


Cirrocumulus


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Mid-level Clouds


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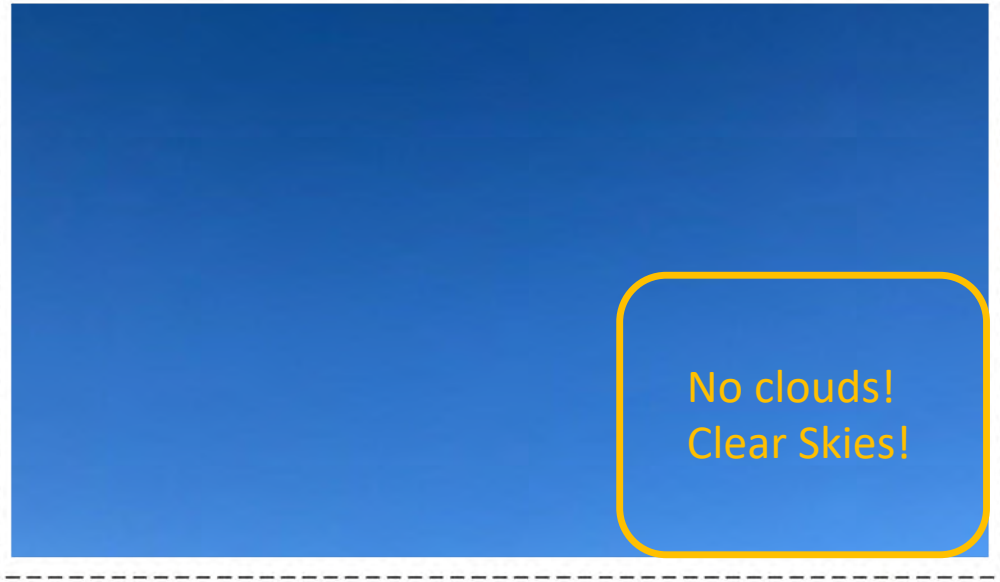
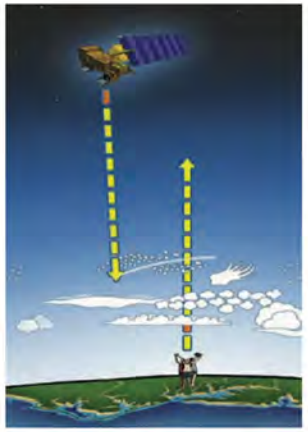
Altocumulus

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Low-level Clouds


Cumulus


Stratus


Stratocumulus

Low-level Precipitating Clouds


Nimbostratus


Cumulonimbus

CONGRATULATIONS!

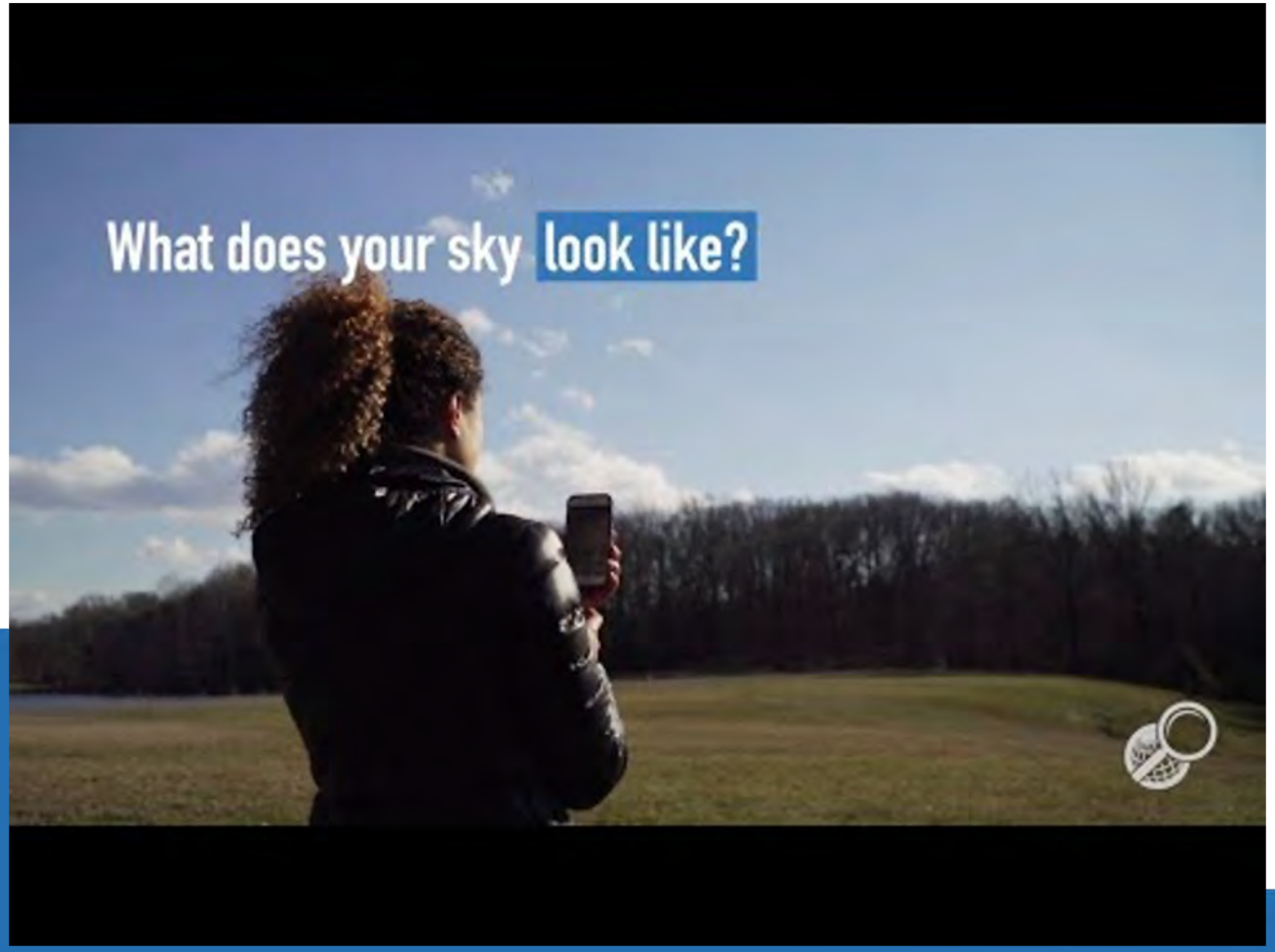
Thanks for playing the

Clouds Classification Challenge!

GLOBE clouds

GLOBE Observer

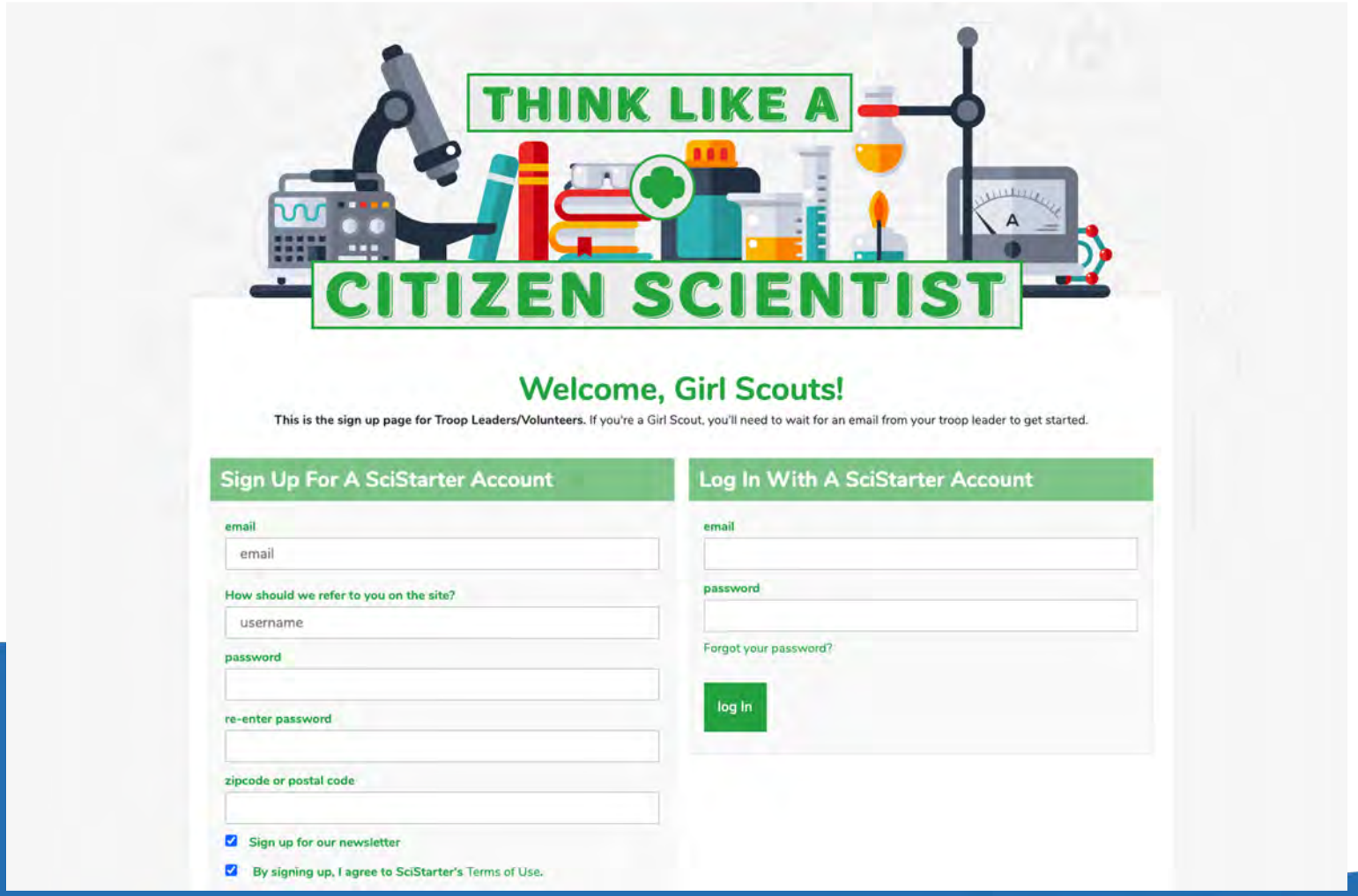
Cloud Classification Challenge



GLOBE clouds

How to use the Clouds Tool

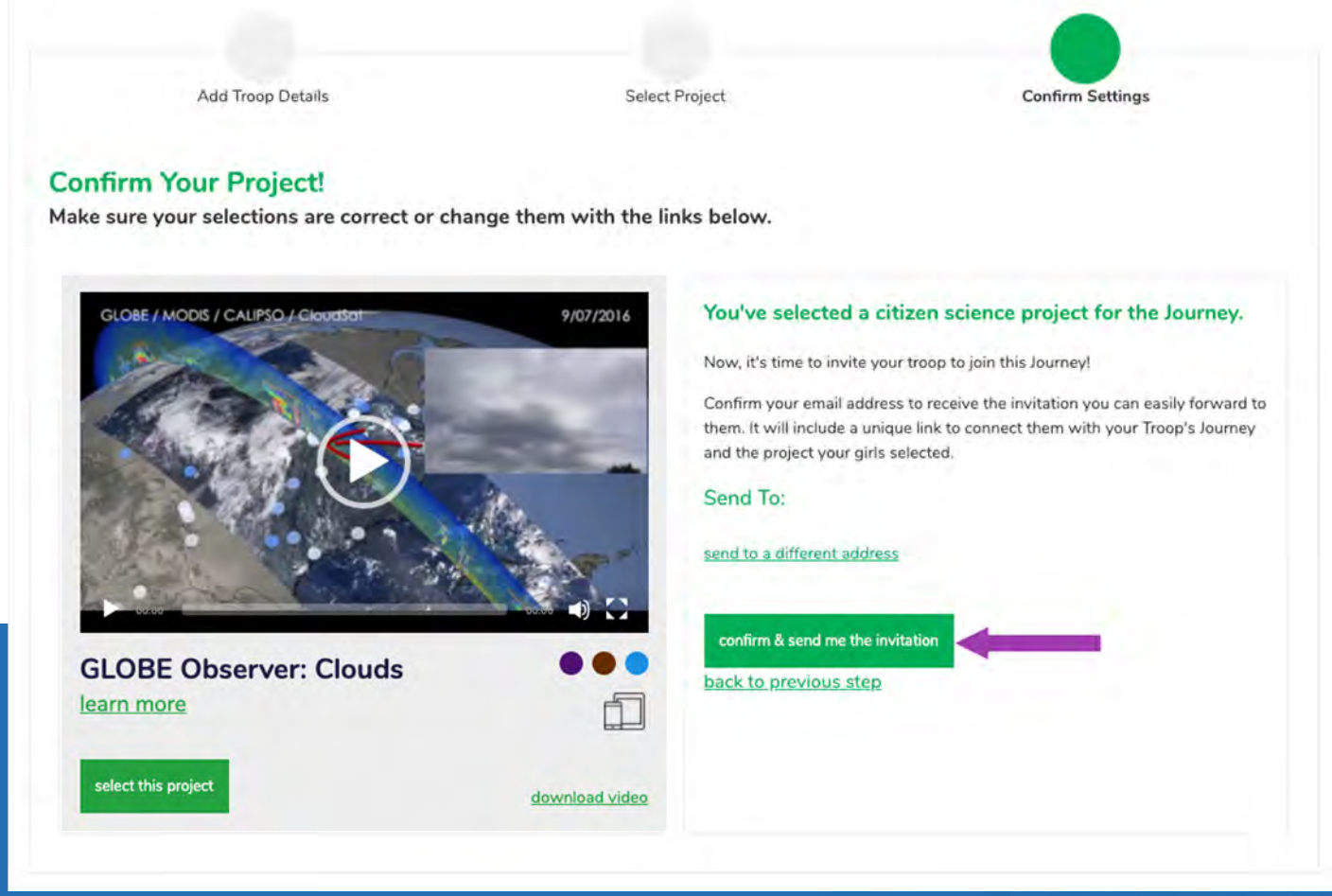
https://youtu.be/CNZGfeVaCHU



GLOBE clouds

Register your Troop on SciStarter

https://scistarter.com/girlscouts/volunteer/landing



GLOBE clouds

Choose GLOBE Observer: Clouds

Get the App

Download on the App Store | GET IT ON Google Play

GLOBE Observer, the app of The GLOBE Program, invites you to make environmental observations that complement NASA satellite observations to help scientists studying Earth and the global environment. Those in the 120+ GLOBE countries can download and use the app.

Lee esta página en español.

GLOBE clouds

Download the App

https://observer.globe.gov/get-the-app

Take Action

What can you do?

- **Educate** other Girl Scouts or people in your community about air quality and teach them what is in our air. Visibility can tell us a lot about how clean our air is.
- **Track frequent storms** and help neighbors know what kind of weather to expect and to prepare.
- **Create a storm kit** to help when severe storms hit or work to create these kits and distribute them to people in your community.
- **Create a team** for your troop, council, or service unit (www.globe.gov/globe-community/globe-teams) and take observations together.

@TheGLOBEProgram

@GLOBEProgram

GLOBE clouds

Questions? Share your projects.