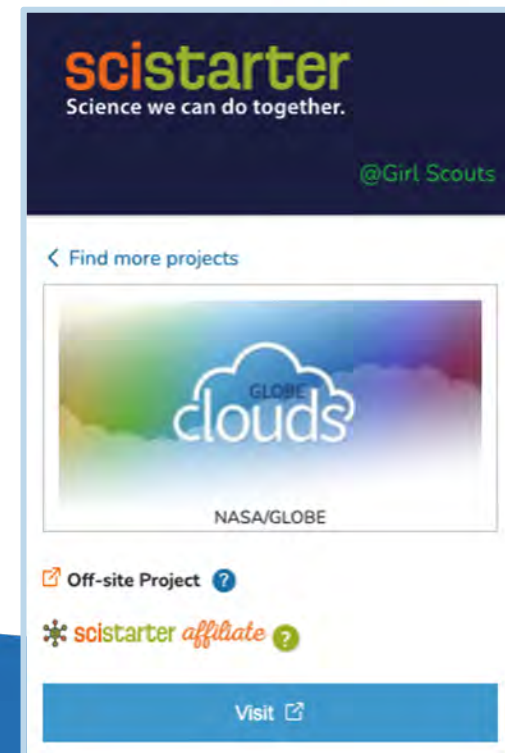




&



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.

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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>

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## Demo Time! Cloud in a Bottle

# What does a Scientist Do?



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Press Pause while you discuss.

# What does a Scientist Do?



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clouds

# What does a Scientist Do?

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







**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.



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clouds

**Make a Hypothesis**

Answer your question based on observations



# How do scientists know if their hypothesis is correct?

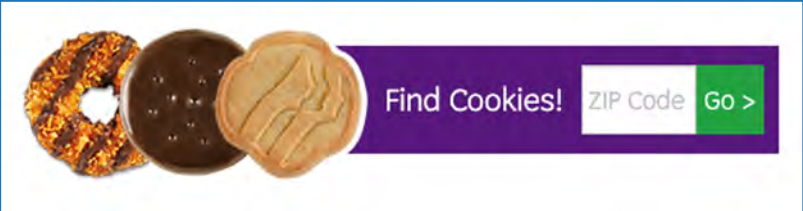
Collect and Analyze Data



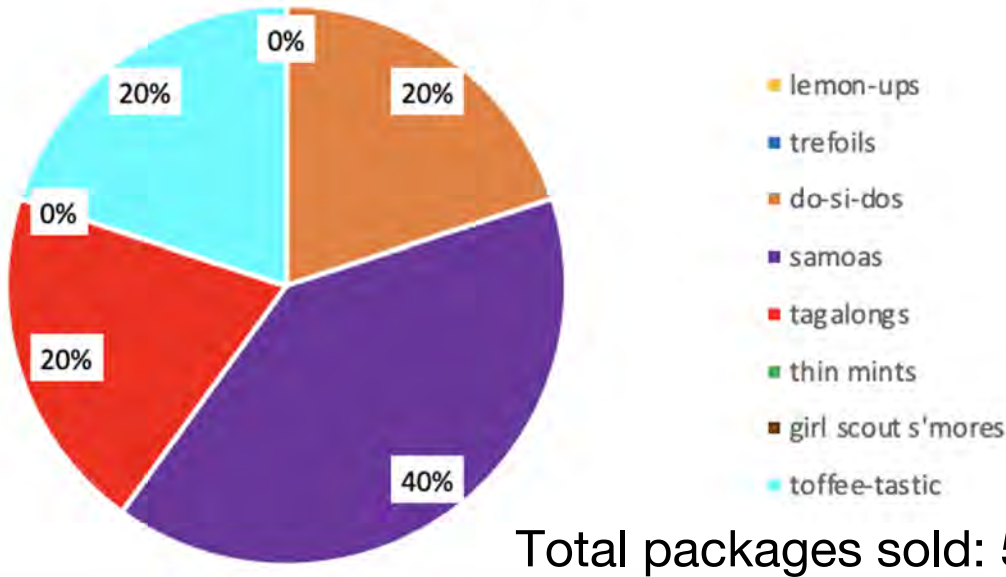


# Collect and Analyze Data

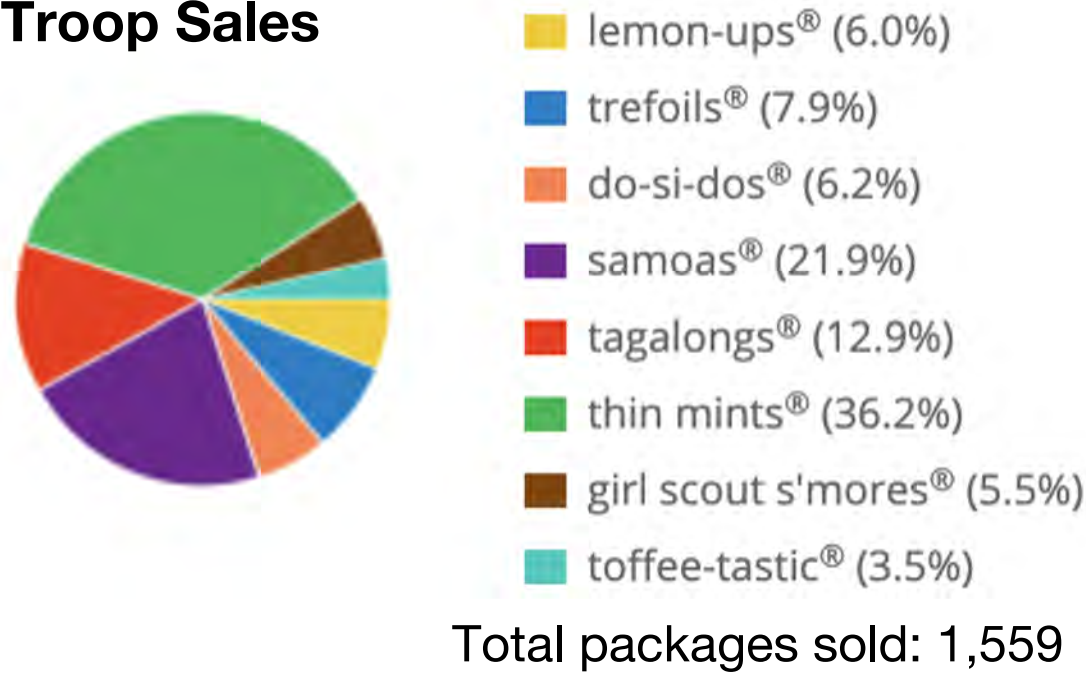
## Girl Scout Cookie Sales

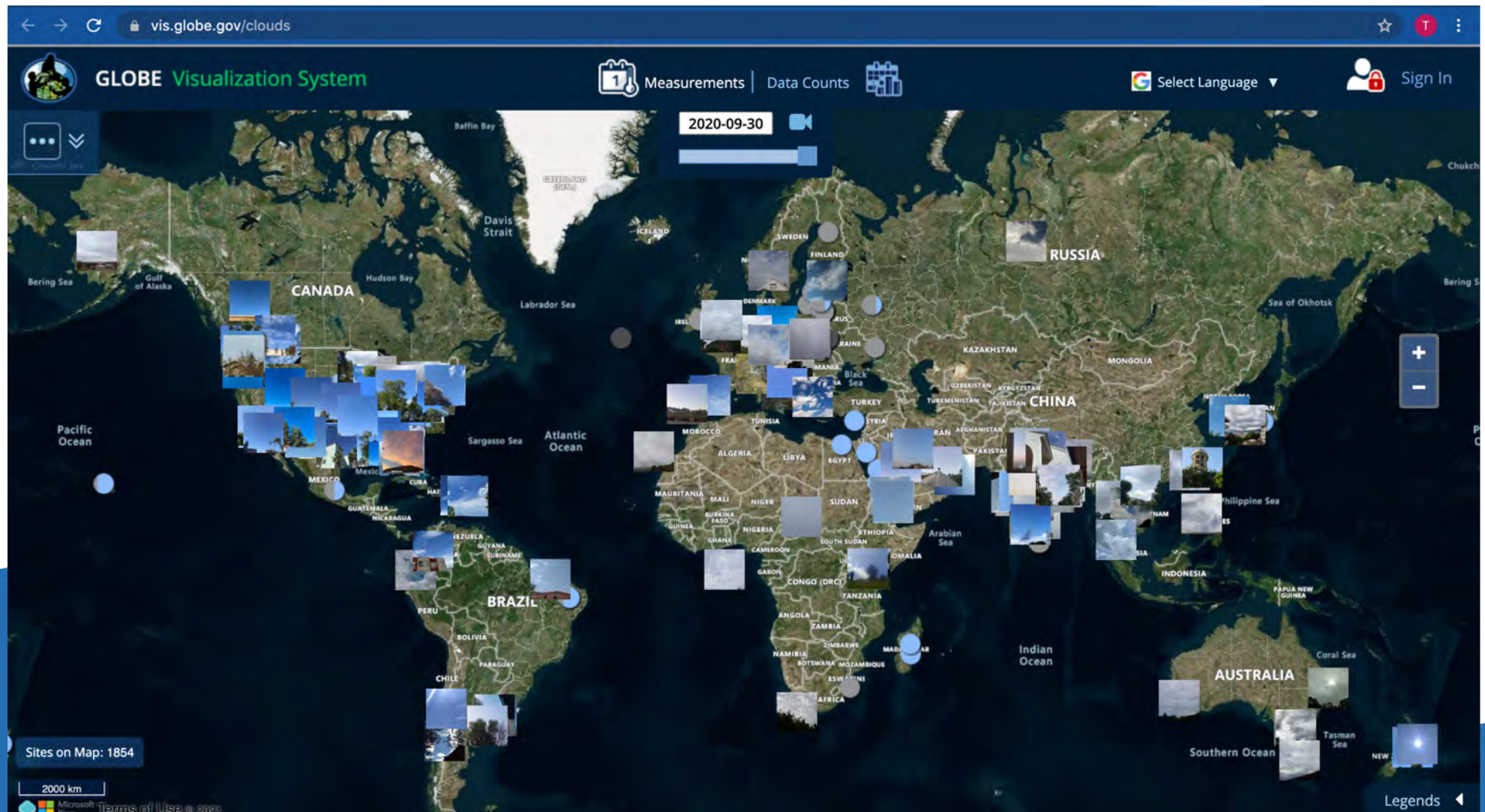


### Single Sale



### Troop Sales



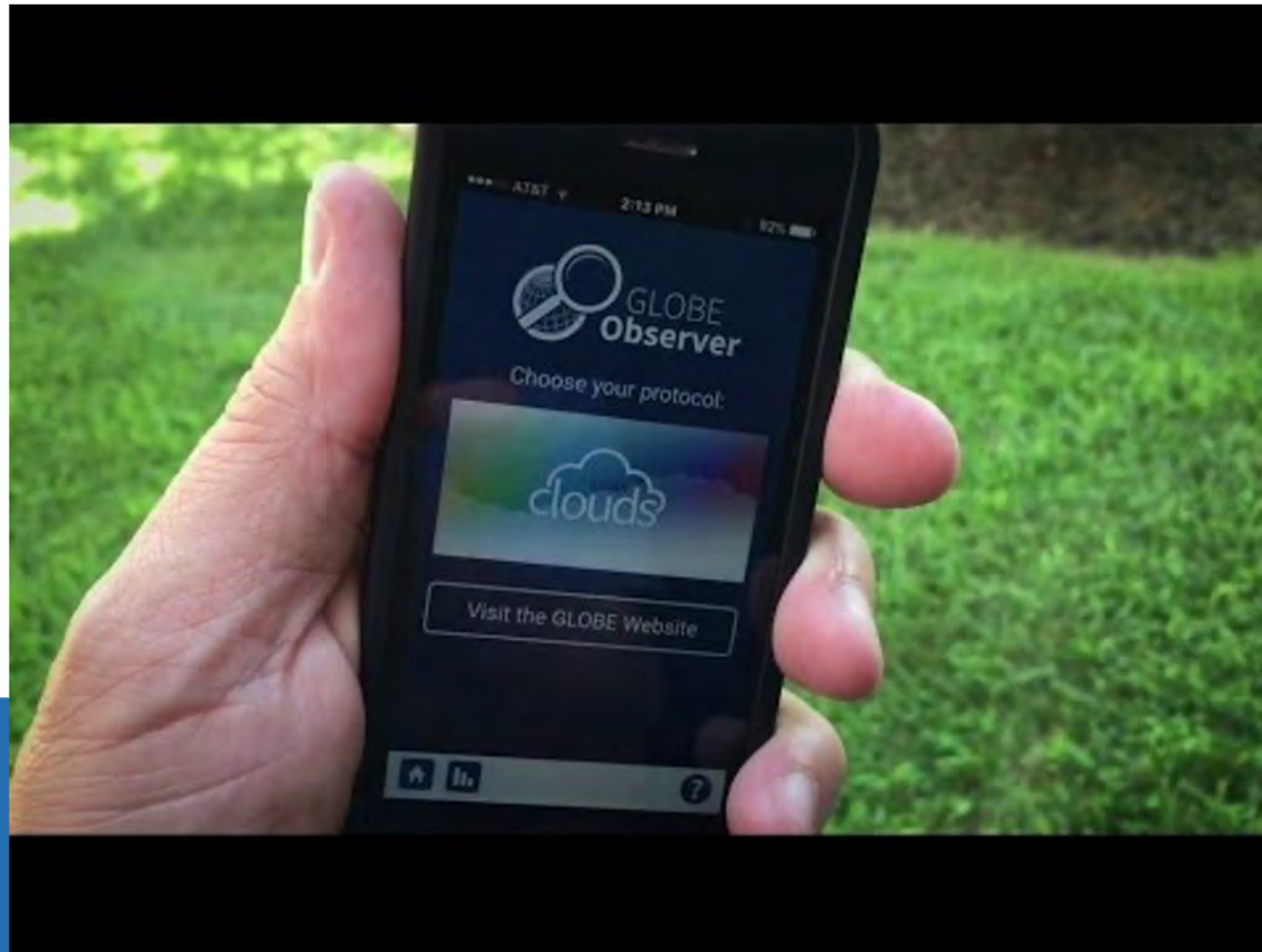


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Clouds Data

<https://vis.globe.gov/clouds>





GLOBE  
clouds

# Introducing GLOBE Observer

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





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clouds

**GLOBE Observer Cloud Science**

<https://youtu.be/TNc5qjj8ZZE>

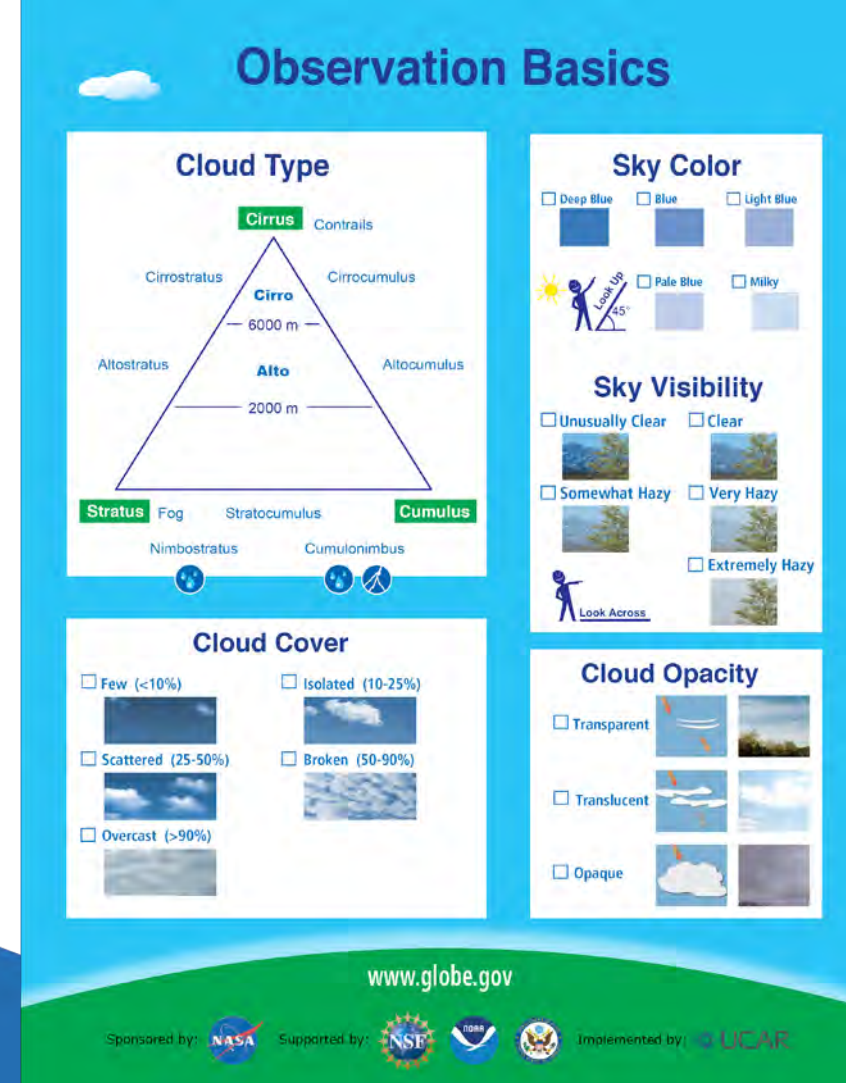
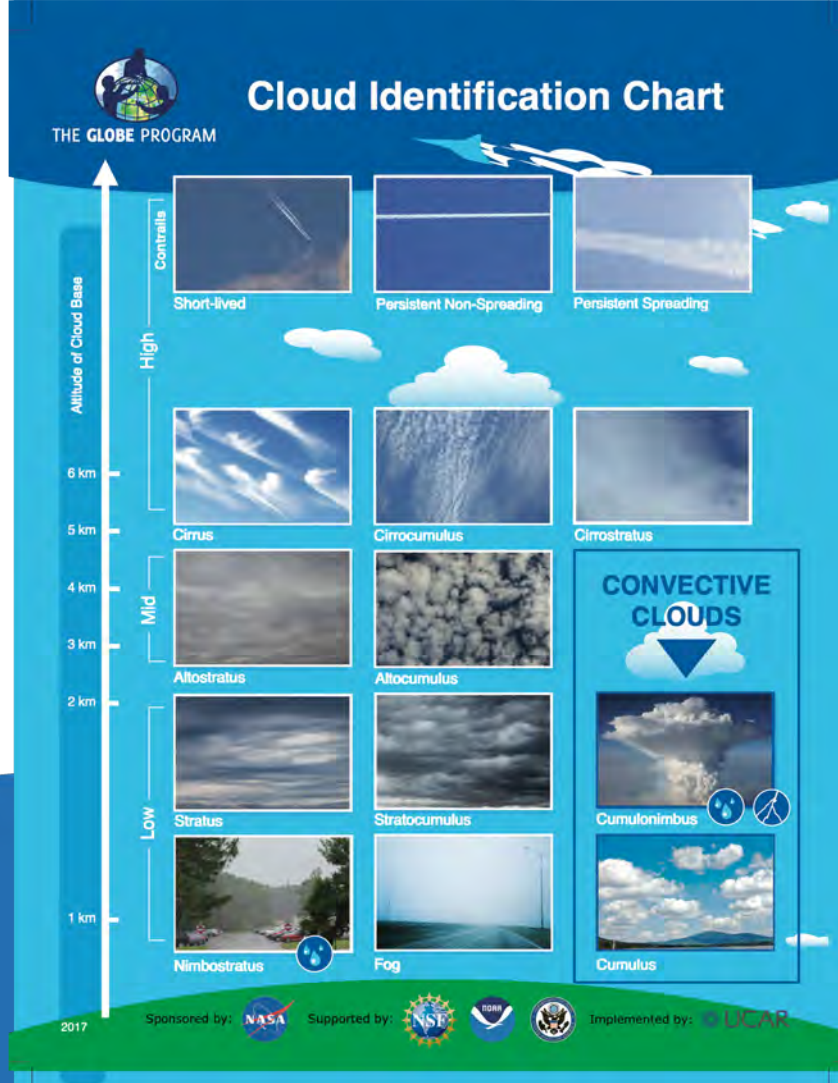


Marile Colon Robles

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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](#)

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clouds

**GLOBE Observer**  
Cloud Classification Challenge

# 1.

## High-level Clouds



Cirrus



Cirrostratus



Circumcumulus



Contrails

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

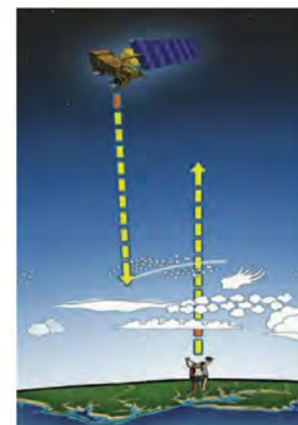
## Mid-level Clouds



Altostratus



Altostratus



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



Nimbostratus



Cumulonimbus

## Low-level Precipitating Clouds



# 2.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

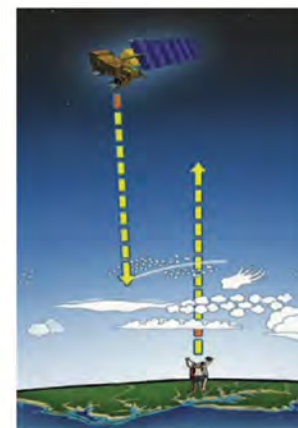
## Mid-level Clouds



Altostratus



Alto cumulus



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

## Low-level Clouds



Cumulus



Stratus



Stratocumulus



Nimbostratus



Cumulonimbus

## Low-level Precipitating Clouds



# 3.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

## Mid-level Clouds



Altostratus



Altostratus



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## Low-level Clouds



Cumulus



Stratus



Stratocumulus

## Low-level Precipitating Clouds



Nimbostratus



Cumulonimbus

# 4.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

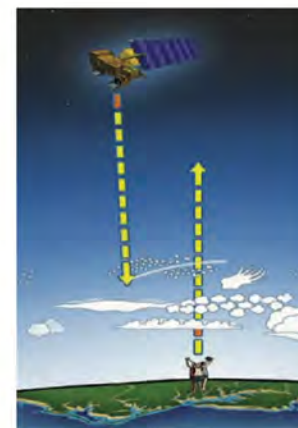
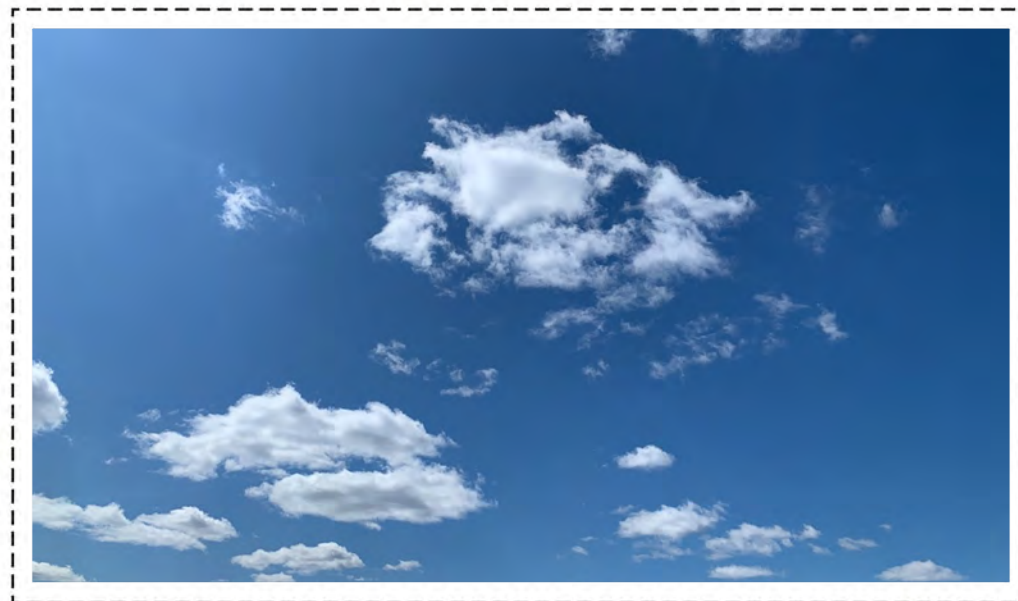
## Mid-level Clouds



Altostratus



Altostratus



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## Low-level Clouds



Cumulus



Stratus



Stratocumulus

## Low-level Precipitating Clouds



Nimbostratus



Cumulonimbus



# 5.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

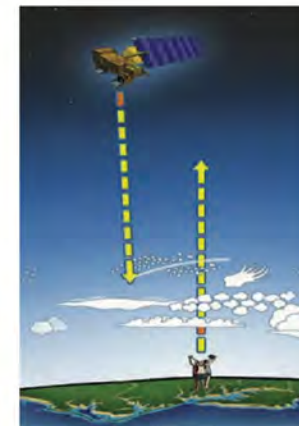
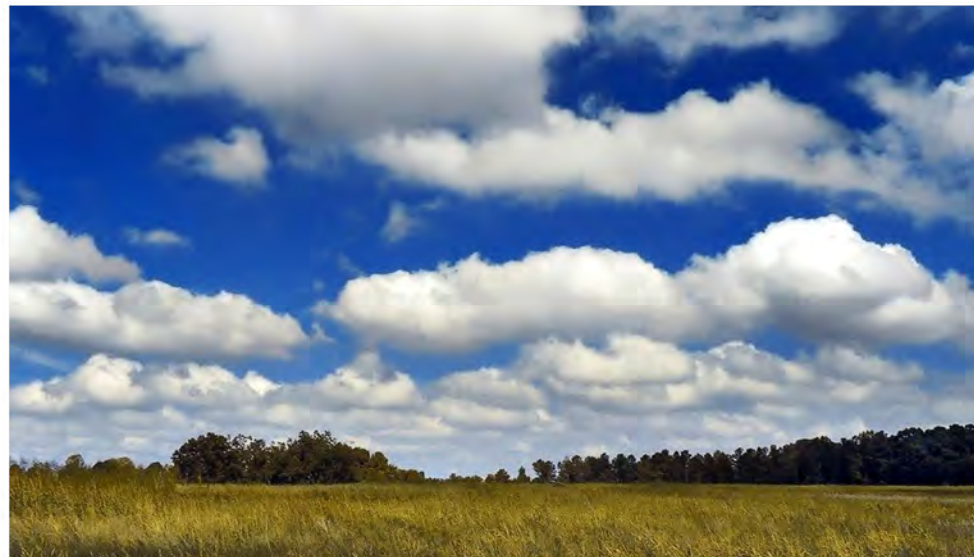
## Mid-level Clouds



Altostratus



Altostratus



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



Nimbostratus



Cumulonimbus

## Low-level Precipitating Clouds



# 6.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

## Mid-level Clouds



Altostratus



Altostratus



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



Nimbostratus



Cumulonimbus

## Low-level Precipitating Clouds

# 7.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

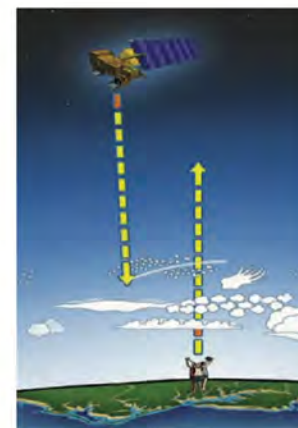
## Mid-level Clouds



Altostratus



Altostratus



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



Nimbostratus



Cumulonimbus

## Low-level Precipitating Clouds



# 8.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

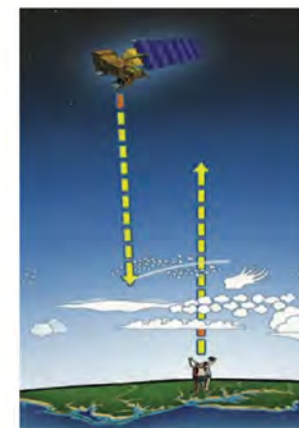
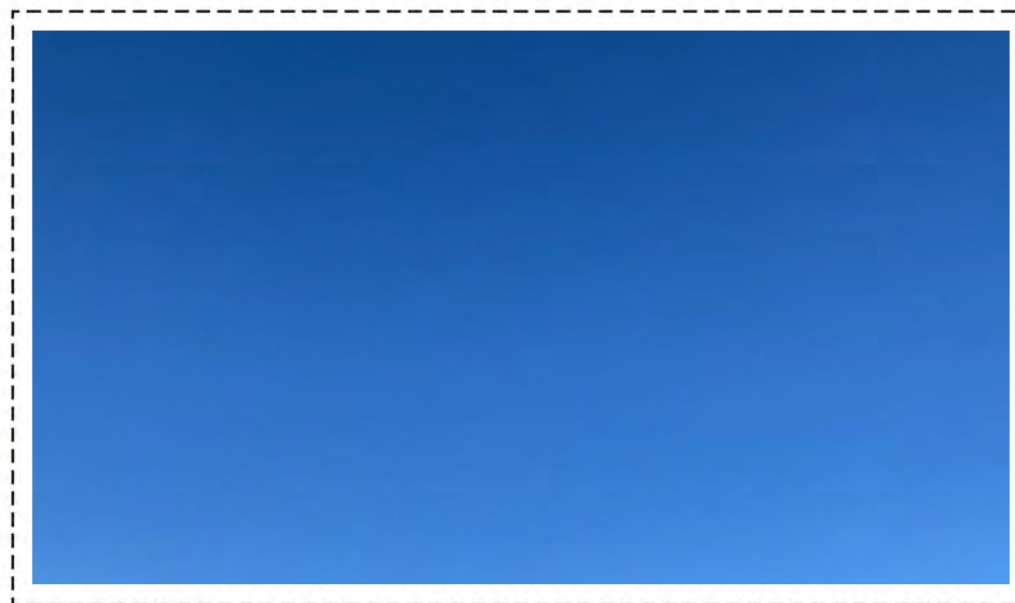
## Mid-level Clouds



Altostratus



Altostratus



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



**And the ANSWERS are...**

**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



Altostratus



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### Low-level Clouds



Cumulus



Stratus



Stratocumulus



Nimbostratus

### Low-level Precipitating Clouds



Cumulonimbus

# 2.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

## Mid-level Clouds



Altostratus



Alto cumulus



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



# 3.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

## Mid-level Clouds



Altostratus



Altostratus



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



Nimbostratus

## Low-level Precipitating Clouds



Cumulonimbus

4.

### High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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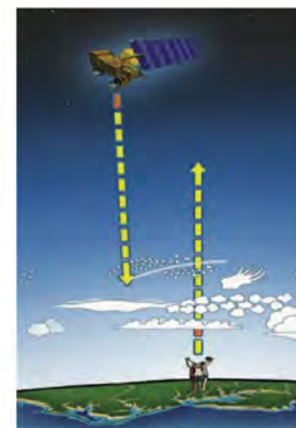
### Mid-level Clouds



Altostratus



Alto cumulus



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### Low-level Clouds



Cumulus



Stratus



Stratocumulus

### Low-level Precipitating Clouds



Nimbostratus



Cumulonimbus



# 5.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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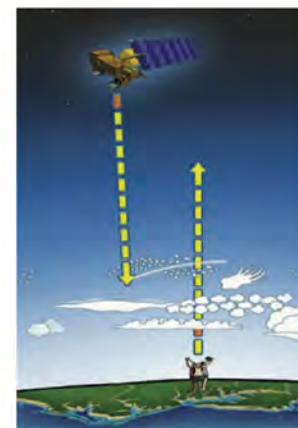
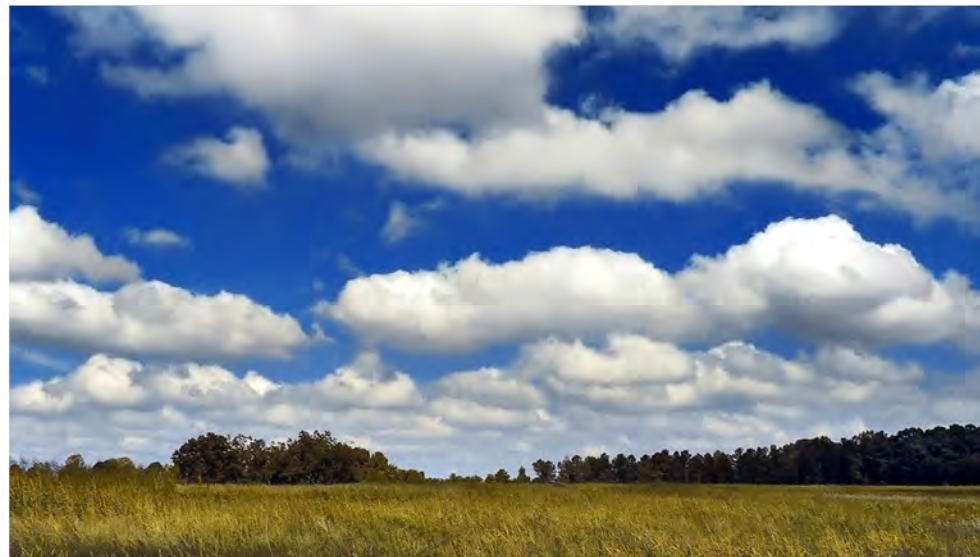
## Mid-level Clouds



Altostratus



Altostratus



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## Low-level Clouds



Cumulus



Stratus



Stratocumulus

## Low-level Precipitating Clouds



Nimbostratus



Cumulonimbus



# 6.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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

## Mid-level Clouds



Altostratus



Altostratus



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



Nimbostratus

## Low-level Precipitating Clouds



Cumulonimbus

# 7.

## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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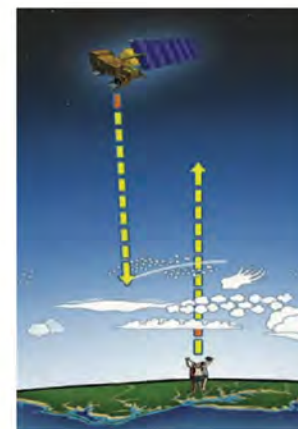
## Mid-level Clouds



Altostratus



Altostratus



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



## High-level Clouds



Cirrus



Cirrostratus



Cirrocumulus



Contrails

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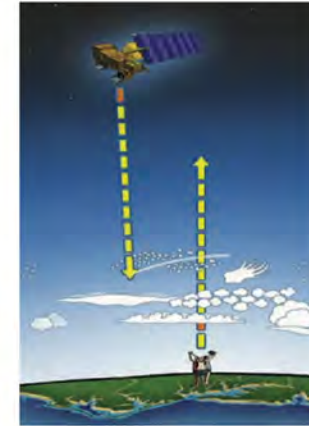
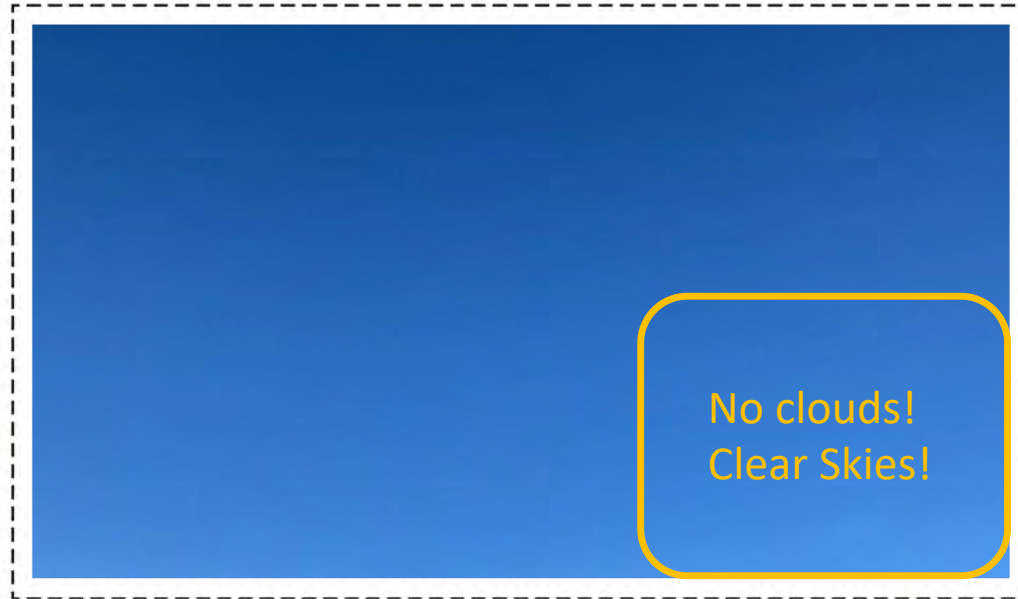
## Mid-level Clouds



Altostratus



Altostratus



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



**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>



## Welcome, Girl Scouts!

This is the sign up page for Troop Leaders/Volunteers. If you're a Girl Scout, you'll need to wait for an email from your troop leader to get started.

### Sign Up For A SciStarter Account

email

How should we refer to you on the site?

password

re-enter password

zipcode or postal code

☒ Sign up for our newsletter

☒ By signing up, I agree to SciStarter's Terms of Use.

### Log In With A SciStarter Account

email

password

[Forgot your password?](#)

log in

GLOBE  
clouds

# Register your Troop on SciStarter

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



Add Troop Details

Select Project

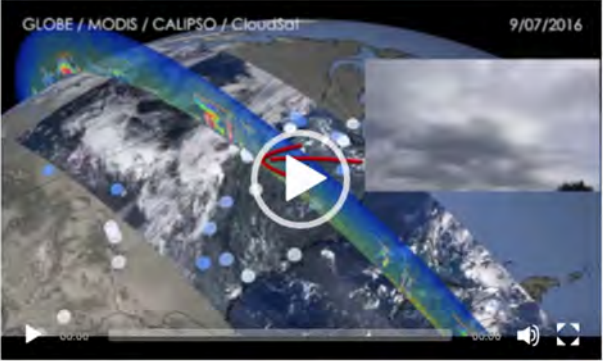
Confirm Settings

### Confirm Your Project!

Make sure your selections are correct or change them with the links below.

GLOBE / MODIS / CALIPSO / CloudSat

9/07/2016



GLOBE Observer: Clouds

[learn more](#)

select this project

[download video](#)

You've selected a citizen science project for the Journey.

Now, it's time to invite your troop to join this Journey!

Confirm your email address to receive the invitation you can easily forward to them. It will include a unique link to connect them with your Troop's Journey and the project your girls selected.

Send To:

[send to a different address](#)

confirm & send me the invitation

[back to previous step](#)

GLOBE  
clouds Choose GLOBE Observer: Clouds

## Get the App



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](http://www.globe.gov/globe-community/globe-teams)) and take observations together.



@TheGLOBEProgram



@GLOBEProgram



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clouds

Questions? Share your projects.