

Earth Citizen Science with GLOBE Observer

Theresa Schwerin

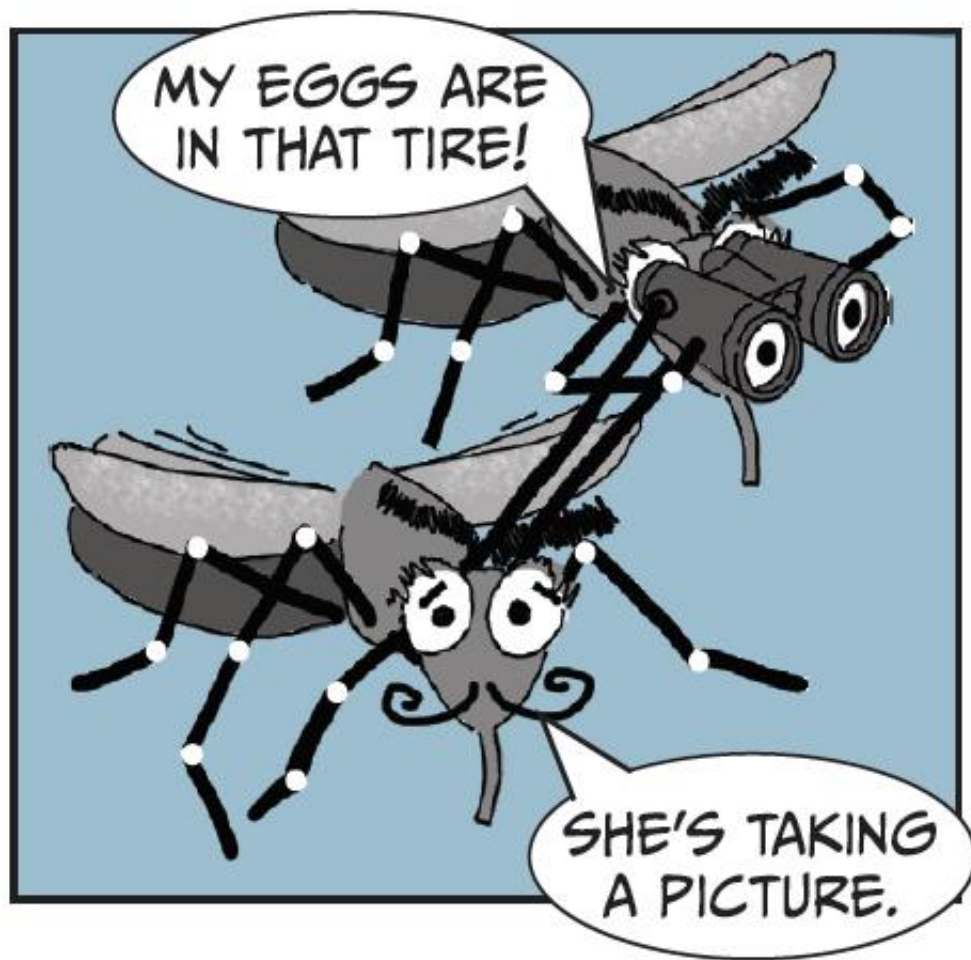
Institute for Global Environmental Strategies



nesec
NASA Earth Science
Education Collaborative

What is a Citizen Scientist:

A person who **volunteers with science research** – for example by making and recording observations





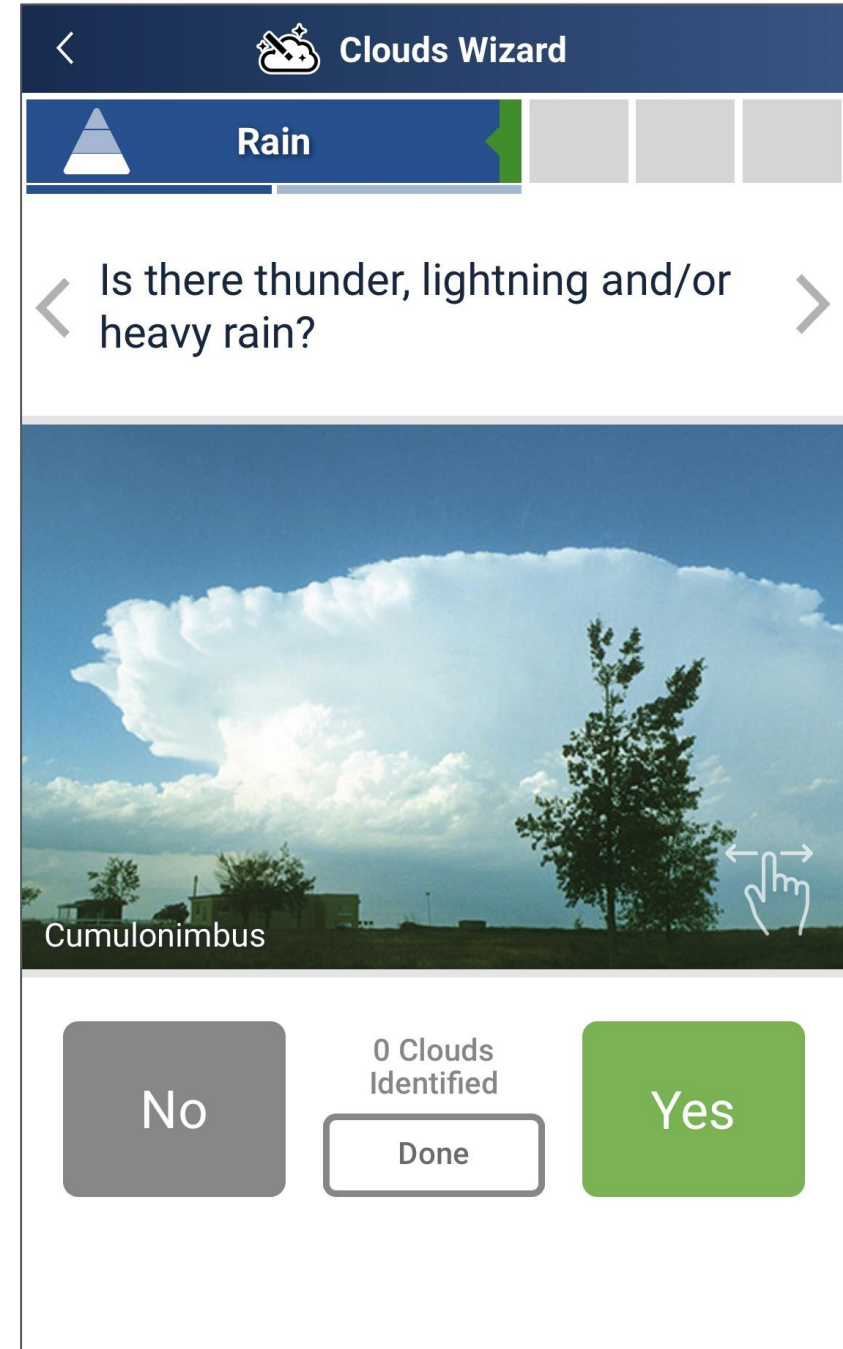
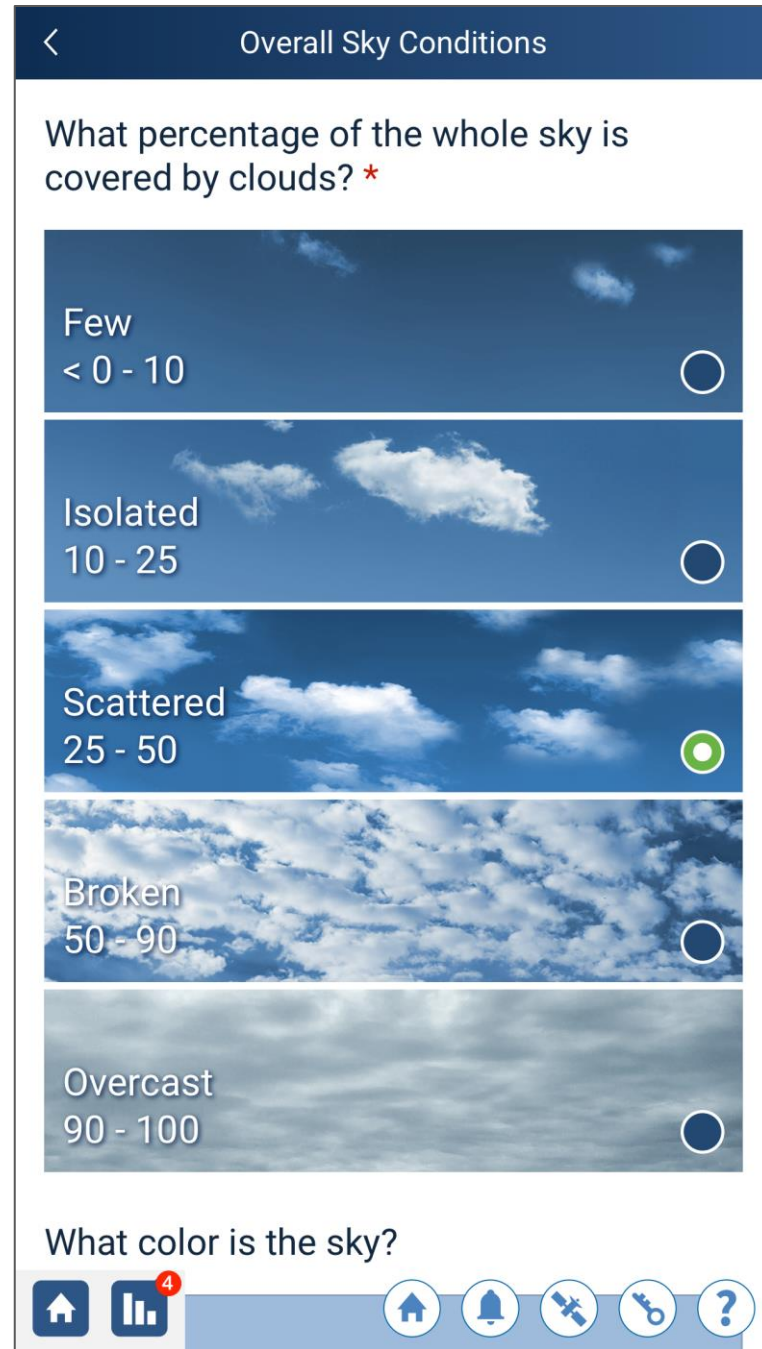
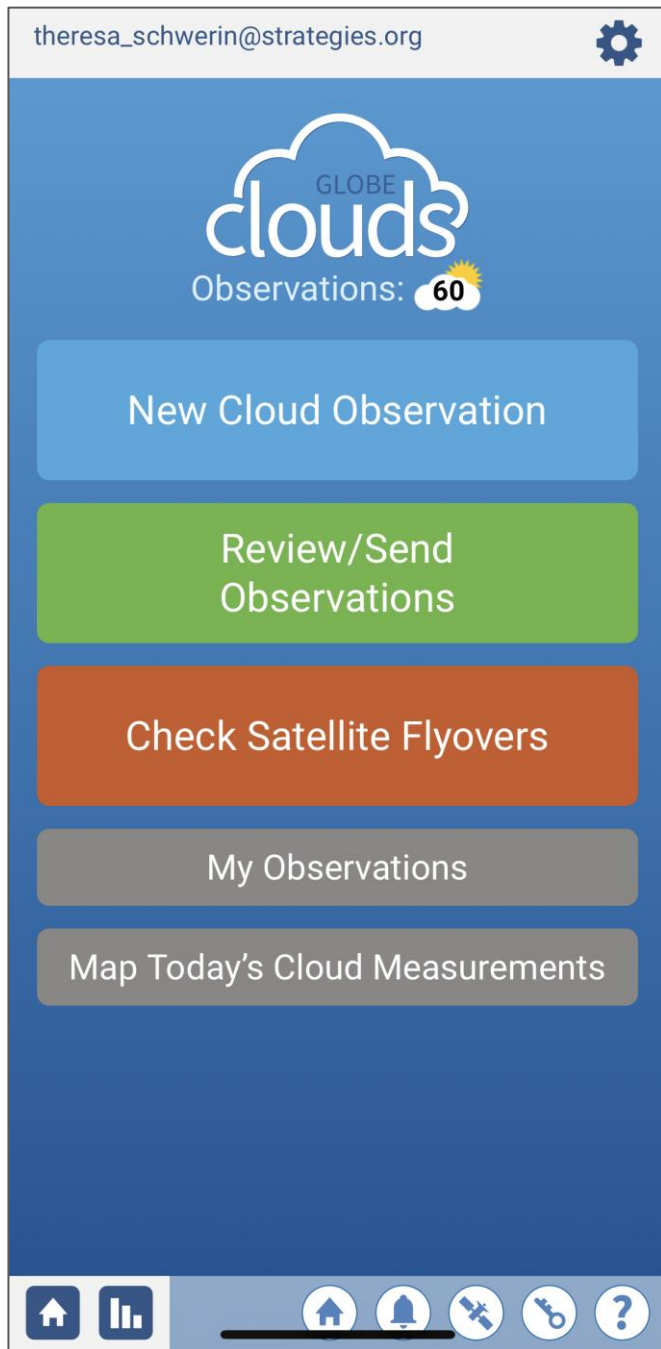
Choose your protocol:



THE
GLOBE PROGRAM 

<https://observer.globe.gov/about/get-the-app>






Choose your protocol:



08/26/2017 Clouds



North

Time (UTC): 17:16:00

Site: 18SUJ341186

Total Sky

Cloud Cover: **Isolated (10-25%)**

Sky Color: **Light Blue**

Sky Clarity: **Clear**

High Level Clouds (not observed)

Mid Level Clouds

Cloud Types: **Alto cumulus**

Cloud Cover: **Few (1-10%)**

Opacity: **Translucent**


Low Level Clouds

Cloud Types: **Cumulus**

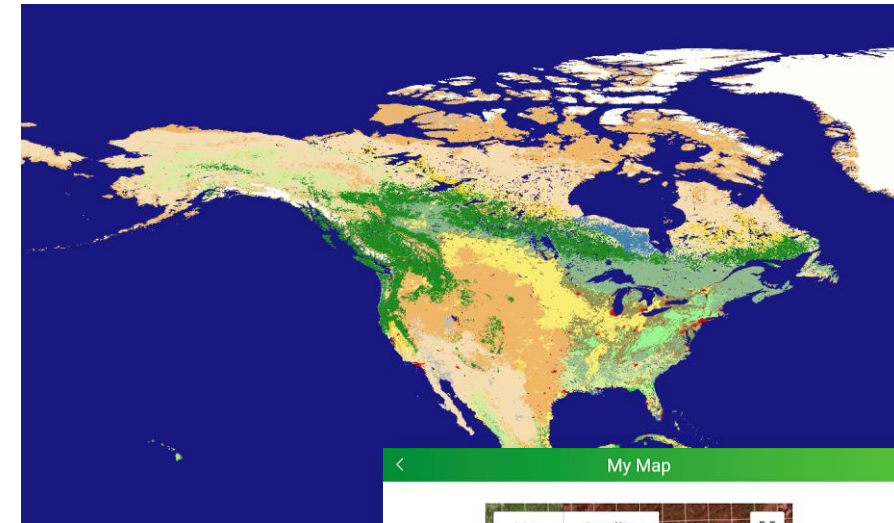
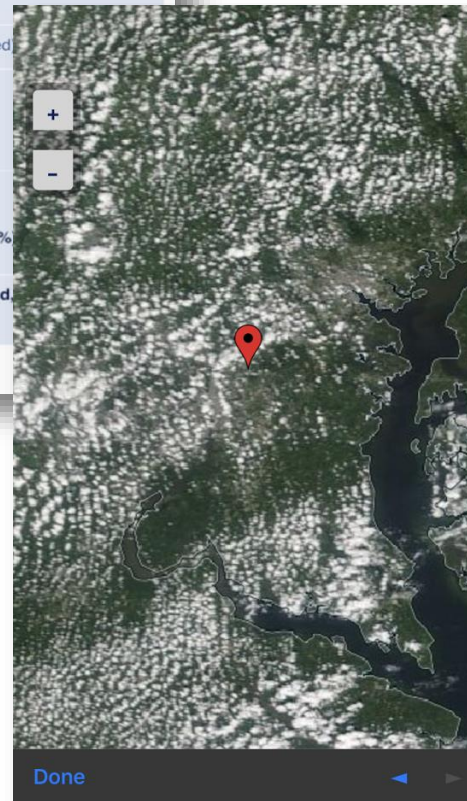
Cloud Cover: **Isolated (10-25%)**

Opacity: **Opaque**

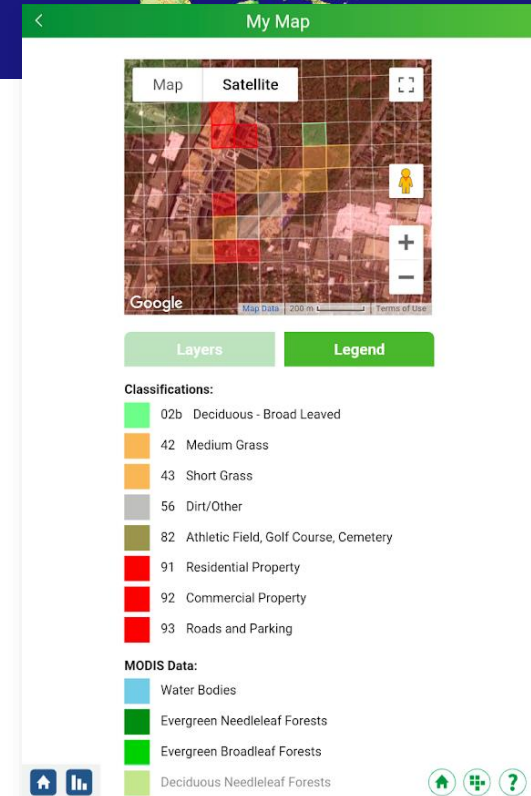
Surface Conditions: **Dry Ground, Trees**

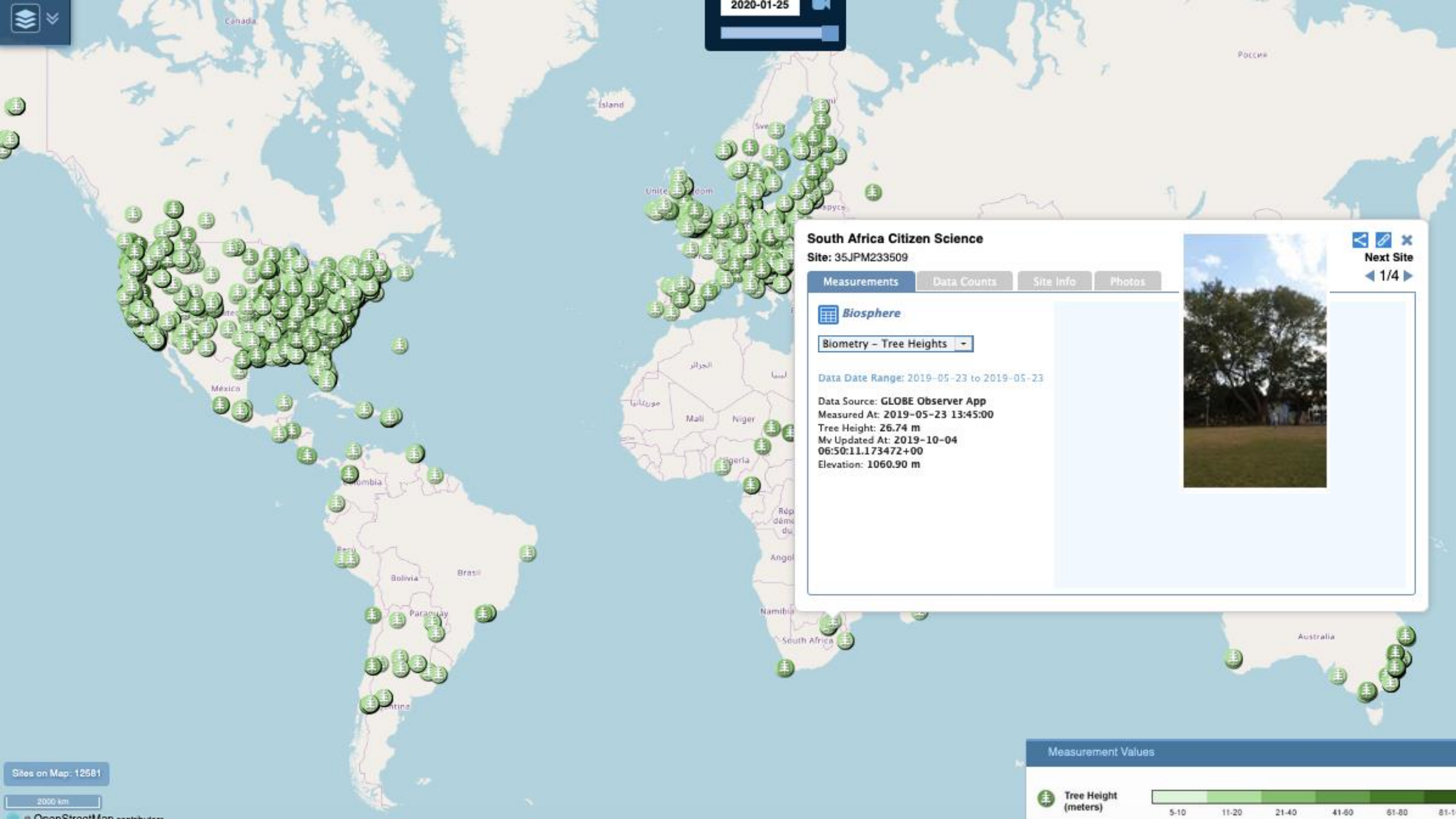
 NASA Satellite View

User cloud observation (left) and satellite cloud image (below)



Satellite-based land cover map (top) and user-created map (right)





Resources to support Earth citizen science In your library programs

- Go to <http://www.starnetlibraries.org/our-planet-earth/>
- Scroll down to GLOBE at Home Section



★ Activity	📷 Taking Observations	📝 Program Ideas
Cloud in a jar:		
<ul style="list-style-type: none">• Download Activity (English Version) Download Activity (Spanish Version)• View Video Demo (North Hollywood Branch / Los Angeles Public Library)• View Toolkit to discover more activities, book and other resources		

★ Activity	📷 Taking Observations	📝 Program Ideas
Build a Mosquito Larvae Trap:		
<ul style="list-style-type: none">• Download Activity (English Version)• View Video Demo (Dr. Russanne Low, IGES)• View Toolkit to discover more activities, book and other resources		

★ Activity	📷 Taking Observations	📝 Program Ideas
Build a Clinometer:		
<ul style="list-style-type: none">• Download Activity (English Version)• View Video Demo (Coming Soon)• View Toolkit to discover more activities, book and other resources		

★ Activity	📷 Taking Observations	📝 Program Ideas
Make a Map:		
<ul style="list-style-type: none">• Download Activity (English Version)• View Video Demo (Coming Soon)• View Toolkit to discover more activities, book and other resources		

★ Activity

📹 Taking Observations

📝 Program Ideas

Simplified hands-on activities

- Take and Make
- Do not require special equipment
- Short video demos
- Link to more



Video/photo courtesy N. Hollywood Branch of Los Angeles Public Library

Cloud in a Jar

Materials

- ☐ clear glass jar
- ☐ metal tray or plate
- ☐ ice cubes
- ☐ hot water
- ☐ matches (optional)

Creating Your Cloud

1. Fill the jar with about 2 inches of hot water and stir.
2. Light a match, blow it out, and drop it into the jar (optional).
3. Once the smoke clears, place the ice tray on top.
4. Watch a cloud form!

What's Happening?

In this activity, stirring the water increases the amount of water vapor in the jar. As the water vapor rises towards the cool tray, it condenses onto particles in the air. If you used a match, this effect will be even more dramatic because of the smoke particles.

Sketch what you see happening inside of the jar and label the parts of the water cycle.

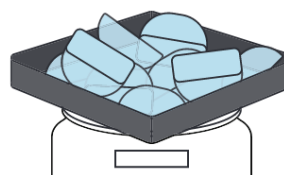


Download the GLOBE Observer app to share your cloud observations with a global community of citizen scientists.

Download on the App Store | GET IT ON Google Play

How do clouds form?

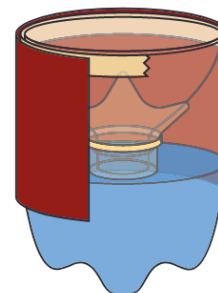
Our atmosphere is full of water vapor, but we can't see it. So why can we see clouds? Clouds form when water vapor condenses onto solid particles in the air, just like how water vapor condenses onto the side of a cool glass on a warm day.



Build a Mosquito Larvae Trap

Materials

- ☐ clear plastic bottle
- ☐ netting
- ☐ rubber band
- ☐ tape
- ☐ scissors or craft knife
- ☐ dark paper or fabric
- ☐ water



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What does the trap do?

Container-breeding mosquitoes lay their eggs in standing water that collects in puddles, buckets, and even trash! This trap tricks mosquitoes into laying their eggs in a container that the larvae can't escape. You can then report the larvae using the GLOBE Observer app.

Remember, this trap isn't for trapping adults. You should still protect yourself from bites by wearing long sleeves and applying effective insect repellent.

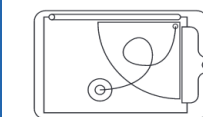
Building the Trap

1. Cut the top off of the bottle using scissors or a craft knife.
2. Use the rubber band to attach the netting to the mouth of the bottle.
3. Invert the top and tape it to the bottom.
4. Fill the trap with water until the water is right below the netting.
5. Wrap with dark paper or fabric.

Using the Trap

1. Put the trap in a protected place outside.
2. Check the trap every few days.
3. If there are adult mosquitoes in the trap, shake gently to drown them.
4. Share your observations using the GLOBE Observer app. Select OVITRAP as the habitat type.

Build a Clinometer



1. Pull a knotted string through the circle in the upper right corner.
2. Attach a weight to the bottom of the string.
3. Tape your straw to the top of the page.
4. Clip to a clipboard or hold against a hard surface.

What is a clinometer?

A clinometer is a tool for measuring angles of slope or elevation. You will need this angle to calculate the height of trees and other objects.

Materials

- ☐ Straw
- ☐ String

Making a Map

Getting Started

When you think of a map, you might think of different elements, like a grid, a compass, a scale, a key, symbols, and labels that show how different things relate to each other. However, the most important part of a map is its purpose. The purpose of a map drives choices such as the scale and what information to include.

Use this page to plan your map and then draw it on the back.

Purpose

How will your map be used? It might help to start with one of these verbs:

find navigate study document teach

Extent and Scale

Map extent is the area that your map shows, and that area must be scaled to the size of your map.

What will the extent of your map be?



Scale describes the size that real-life objects appear on a map. It is often written as a ratio, but can also be descriptive—like one square equals a city block.

Map Data

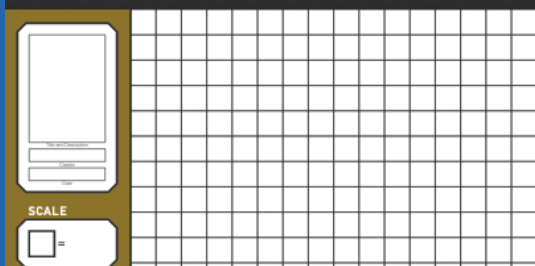
Map data is the information that your map includes, like points of interest, boundaries, physical features, and statistics.

What information will you include in your map?



Want to do more? Place a piece of clear plastic over your map and assign a color to each type of surface. Now try coloring the squares of the grid with just one color each. These squares are similar to the pixels that make up satellite imagery.

observer.globe.gov



★ Activity

📹 Taking Observations

📝 Program Ideas

Taking Observations

Links and videos related to:

- How to take observations
- Why NASA wants your observations
- Science background and related information

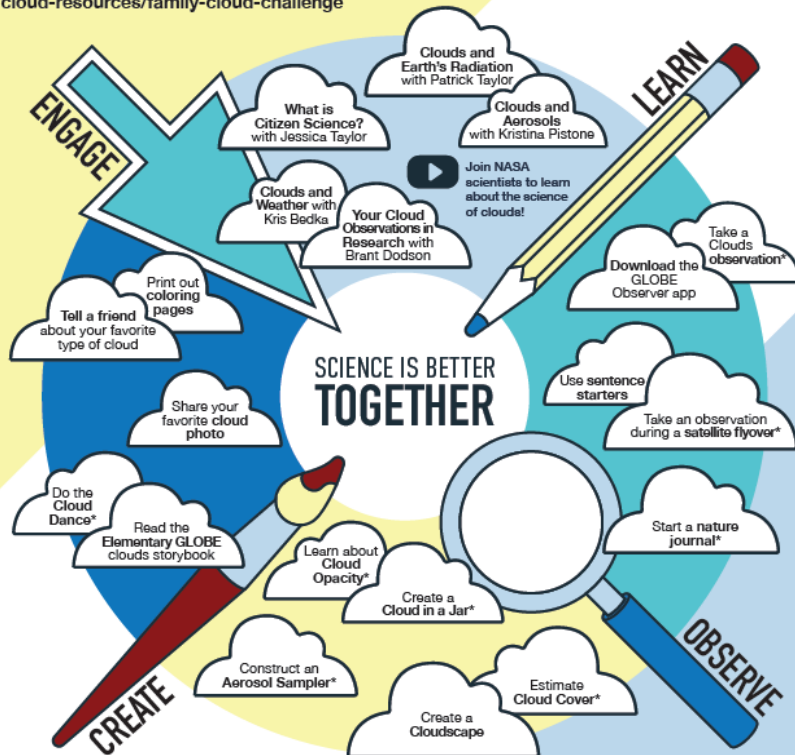


National Aeronautics and Space Administration



NASA GLOBE Clouds: Choice Chart

Use this choice chart to keep track of which activities you complete. See how many clouds can you shade! Learn more at <https://www.globe.gov/web/s-cool/home/family-cloud-resources/family-cloud-challenge>



*Step-by-step videos are available for these activities at go.usa.gov/xJfJfU.

www.nasa.gov

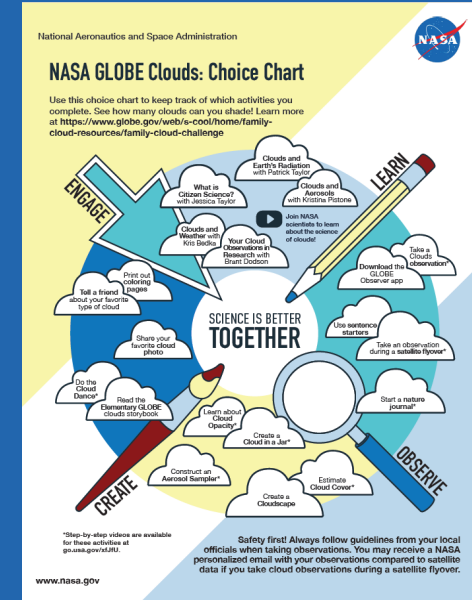
Safety first! Always follow guidelines from your local officials when taking observations. You may receive a NASA personalized email with your observations compared to satellite data if you take cloud observations during a satellite flyover.

Community Cloud Challenge

- 🔗 Learn about clouds
- 🔗 Create with clouds
- 🔗 Engage with the cloud observer community
- 🔗 Observe clouds

Community Cloud Challenge: Learn Videos with NASA subject matter experts

- ☞ **Satellite Matches to GLOBE Cloud Observations**
- ☞ **What is Citizen Science?**
- ☞ **Clouds and Weather from 22,000 miles away**
- ☞ **Clouds and Earth's Climate**
- ☞ **Aerosols and Air Quality**
- ☞ **Impact of Your Observations in Research**



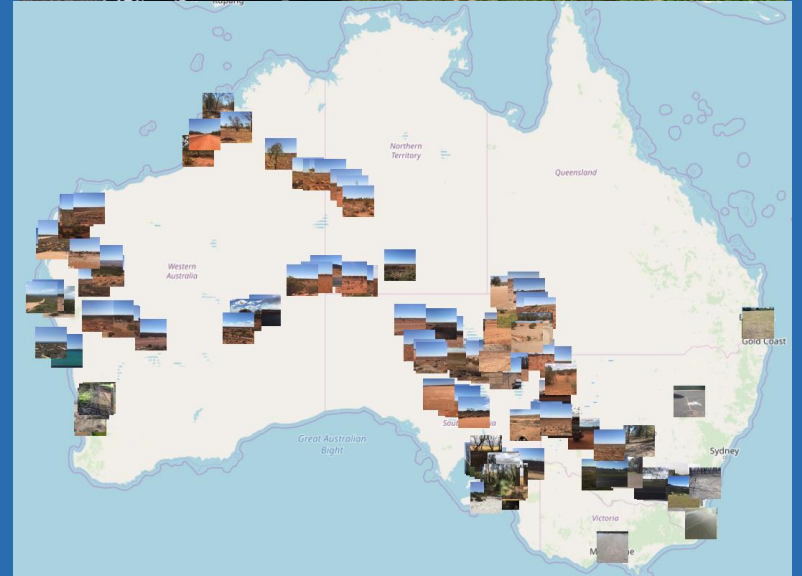
Using the GLOBE Teams Tool

What is a GLOBE Team?

Teams can be used to set up a competition, coordinate a community's citizen science efforts, support an educational or corporate initiative, or simply enable a group of people to work together (including virtually).

Who can join or create a GLOBE Team?

- Anyone with a GLOBE or GLOBE Observer login
- You can join or create as many teams as you wish
- Data collected counts in the total for every team you are on.



Teams of Scouts and their adult leaders collected nearly 200 land cover observations during a 3- month competition in 2019.

How to Create a Team (using the app)

- Download the app, register and login
- Click on the gear icon (top right)
- Select Create a GLOBE Team
- Enter a team name (screened)
- Select your country (required) and city and zip code (optional). This info will be public on the GLOBE Teams page.
- Email confirmation that you successfully created a team & instructions for managing.

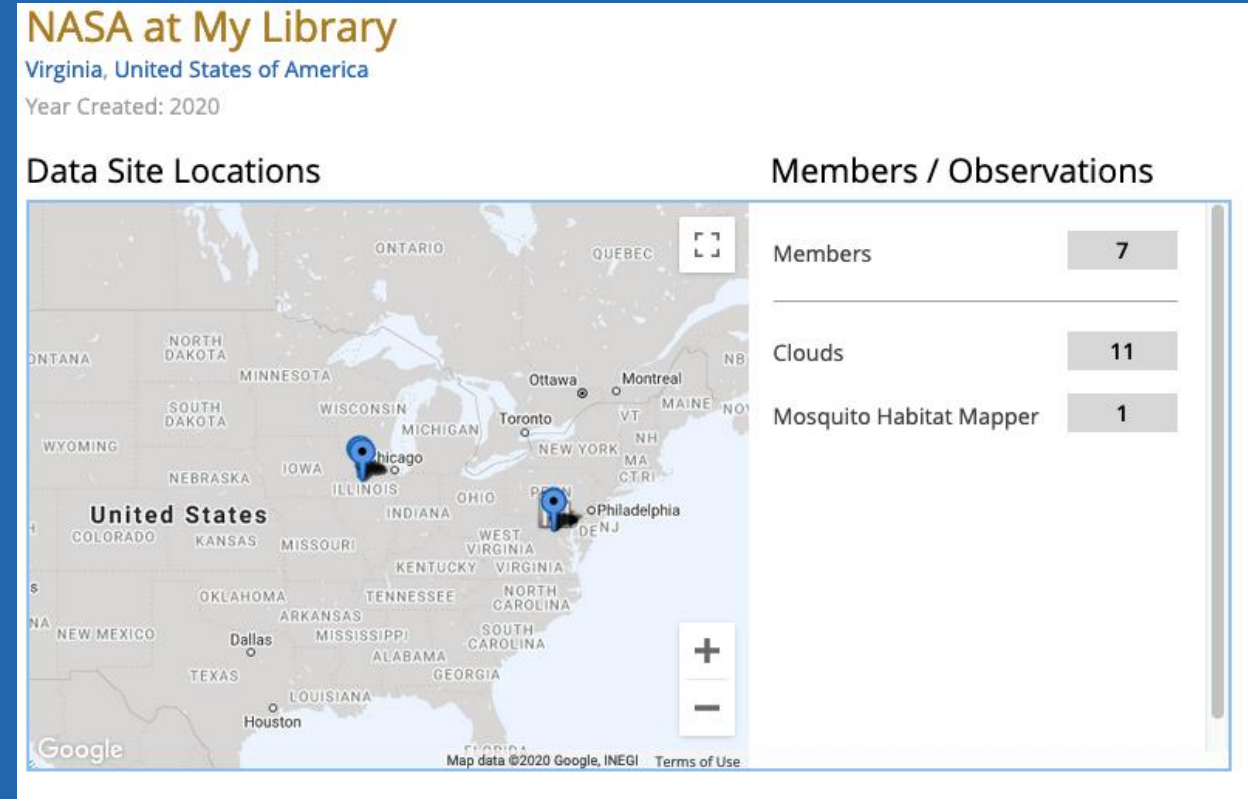
Learn more about teams

<https://observer.globe.gov/do-globe-observer/do-more/teams>



How to Join the NASA@ My Library Team (using the app)

- Log in to the app
- Join the NASA@ My Library Team:
 - Click on the gear icon (upper right)
 - Select "Join a GLOBE Team"
 - Under "Referral code" enter team code: GLIDEVQX



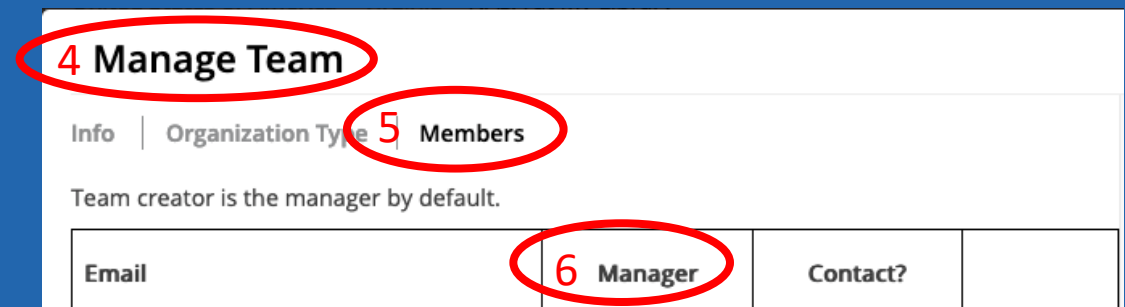
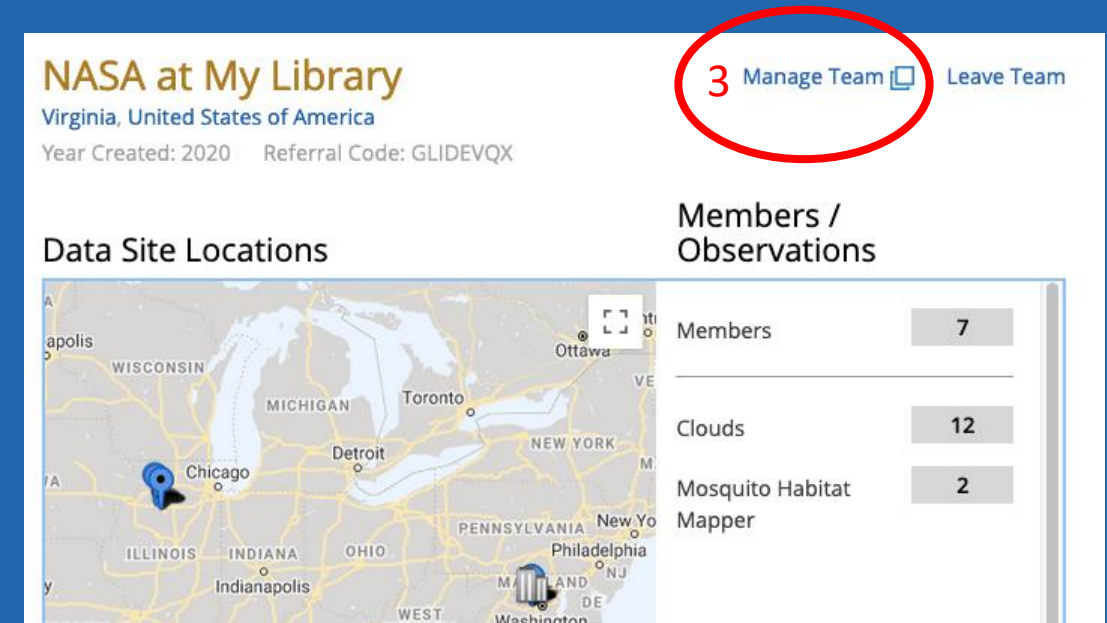
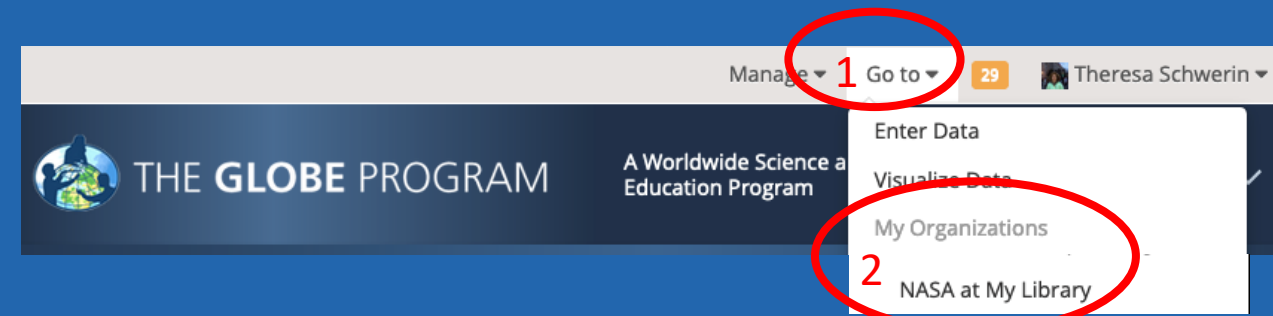
Learn more about the NASA @ My Library Team: <https://observer.globe.gov/naml>

Learn more about teams: <https://observer.globe.gov/do-globe-observer/do-more/teams>

Managing your Team

Go to globe.gov and login

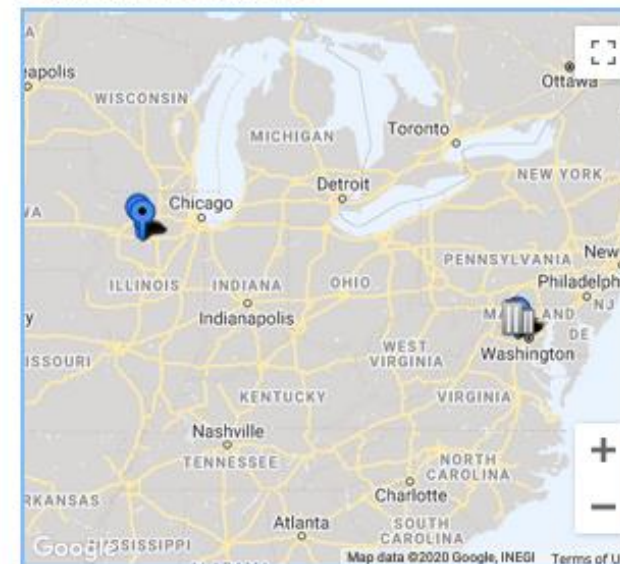
1. Click on “Go to” in the top white bar.
2. My Organizations → Select team
3. Select “Manage Team” to →
4. See all options to manage team
5. Select “Members” to see a list of members and email addresses.
6. Manager is the team creator (by default) can change to another group member.



Benefits of Creating a Team

- Track impact from an event or training
- Invite patrons to take science home and maintain connection to your library
- Set up a competition
- Coordinate volunteer efforts

Data Site Locations



Members / Observations

Members	7
Clouds	12
Mosquito Habitat Mapper	2

DATA SITES

☒ Include citizen science sites

Site Name	Organization Name	Investigation Area	# Observations	Created	Last Used
16TBL936858	United States of America Citizen Science	Atmosphere	1	07/16/2020	07/16/2020
16TBL979798	Illinois GLOBE v-School	Atmosphere	1	07/18/2020	07/18/2020
16TCL081709	United States of America Citizen Science	Atmosphere	1	08/25/2020	08/25/2020

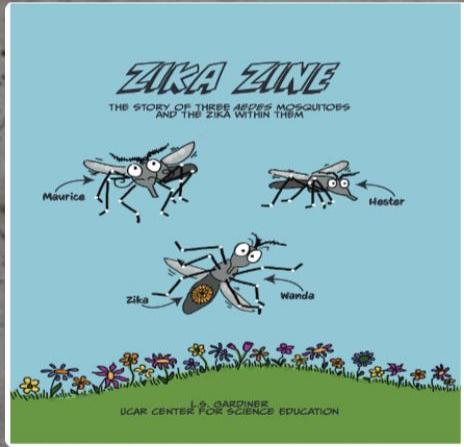
Tips for Teams

- Setting up multiple teams? Start each team name with the same string to make it easier to group your teams together: e.g., library name + event name
- Keep your team private if you want to use the tool to track engagement
- Distribute your team name, referral code, and URL to your patrons with event information

Learn more about teams

<https://observer.globe.gov/do-globe-observer/do-more/teams>

SCIENTIST, AUTHOR, & ILLUSTRATOR DR. LISA GARDINER



SCIENTIST DR. RUSTY LOW



SEPT 3 @ 2 PM CT

For you and your patrons!

Register at: <https://bit.ly/StarNetGO>