



Earth Day 2017: Celebrating with NASA's GLOBE Observer Citizen Science Project

Facilitator's Guide

Introduction: This Earth Day, libraries across the country are celebrating our planet with a special citizen science project that is viewing clouds from above and below. Clouds play an important role in our Earth system. They affect incoming energy, in the form of sunlight as well as outgoing energy, heat emitted from Earth's surface back to space. Thus they help regulate Earth's temperature. NASA has a number of satellites orbiting Earth and collecting data about clouds and Earth's energy. Combining NASA's global view from above with ground observations of clouds and sky conditions from below helps scientists get a more complete picture of clouds in our atmosphere. Because clouds can change rapidly, frequent observations are needed from citizen scientists. "*Citizen science*" engages volunteers in the collection and analysis of science data relating to the natural world, typically as part of a collaborative project with professional scientists. Through the GLOBE Observer app, citizen scientists of all ages can learn more about clouds and participate in NASA science. Formal training in science is not required to participate, just a curiosity about our planet!

Materials:

- Smartphone or tablet with [GLOBE Observer app](#) downloaded
 - Create a login using referral code **earth2017**
 - Using a tablet is good when working with groups – it's easier to show the screen
- [GLOBE Cloud chart](#)
- [GLOBE Observer card](#)
- Optional materials can be found at [STAR_Net Earth Day page](#)

Intended Audiences:

- Parents with young children (3-5), elementary aged (5-11), tweens (11 to 13), teens (13- 18), adults, family groups, mixed age groups, seniors

How: Easy as Pie!

Week before (or several days before):

- Download the app at: <https://observer.globe.gov/about/get-the-app> (register using referral code **earth2017**)
- When you first open the app, you will need to create a login by entering an email address and an optional referral code, and then the system will email you a password. It is important that you and your library patrons use the referral code **earth2017** when first setting up your login so NASA can make a map of all the contributions from the *STAR_Net* community.
- Consider whether participants will have Internet access needed to download the app on the day of the event. You can access a handout with instructions to share with participants both before and during the event that has instructions.
- Practice making observations using the app. Explore features in the app to help with cloud identification, such as satellite overpass times, etc.
- Select a site outside for making observations and plan your logistics. (*How will you get patrons there? Will you start outside at this location? Or inside the library?*)

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- Determine when the satellite will overpass your location in case you want to be outside taking observations at that time. It is not necessary to be taking observations when satellites are passing overhead.
- Send out announcements to local media and through the library's social media accounts (templates and social media shareables are available and ready for you to customize on the [STAR Net Earth Day page](#))
- If possible, send out directions to registered participants so they can have the GLOBE Observer app downloaded and are ready to go! Be sure to tell them to enter the referral code (**earth 2017**) when they set up their log in.
- Display promotional materials for your program (e.g., displays and flyers).
- Consider potential "rainy day plan" ideas. (See ideas for this on the [STAR Net Earth Day page](#).)

Day before the program

- Make sure your GLOBE Observer app is up-to-date and that you can login easily.
- Send reminders to participants if they needed to register.
- Print out any handouts needed for your program.
- Do a dry run with library staff and volunteers of your planned program.

Morning of the program

- Test out the app to be sure everything is working.
- Check the weather; if needed, consider our rainy day back up plan.

Safety Notes

- Select a location for sky observations that is safe (e.g., without traffic). Do not use the library parking lot! Sky observers will be looking up at the sky and may not be aware of their surroundings.
- Never look directly at the sun.

Additional Activity/Programming Suggestions:

Look at pictures of clouds either in books or using a computer and projector. Show one of the short videos from the [STAR Net Earth Day page](#). Explain that several NASA Earth-observing satellites study clouds from above, and NASA researchers would like to have citizen scientists take pictures of clouds from the ground to assist them with their research. Have participants download the app and enter the referral code using the directions above. Go outside and make an observation. If time permits, come back inside and do an activity from the landing page.

Read a story to children, then identify clouds outside or through library window. Enter their observations into the GO app. Suggested stories: from Elementary GLOBE: [Do You Know that Clouds Have Names](#) and [What's Up in the Atmosphere](#); books from the library collection such as "Cloudy with a Chance of Meatballs", "It Looked like Spilt Milk", "The Cloud Book" by Tomie dePaola and others.

Host a *Book Group* with tween, teen, and/or adults. Have copies available or point patrons to this suggested [collection of articles](#) from NASA's Earth Observatory about clouds to read either before or during the book group meeting. Discuss the importance of citizen science, how NASA satellites study clouds, and go make cloud observations.