

# TODAY'S TECHNOLOGY

## Contribute to NASA Science and Understanding of Earth through GLOBE Observer!

Citizen scientists of all ages are invited to make environmental observations that complement NASA satellite observations and help scientists studying Earth and the global environment. The **GLOBE Observer app** for smart phones and tablets (iOS and Android) guides you through taking and submitting observations, including:

### Clouds

**What citizen scientists can do:** Photograph clouds, record sky observations, and compare their observations with NASA satellite images.

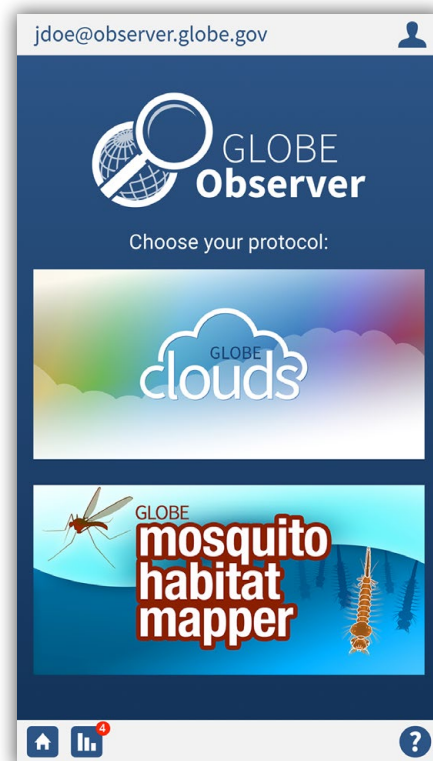
**Why?** Clouds play an important role in our Earth system. They affect incoming energy, in the form of sunlight as well as outgoing energy, heat emitted from Earth's surface back to space. Thus they help regulate Earth's temperature. NASA has a number of satellites orbiting Earth and collecting data about clouds and Earth's energy. Combining NASA's global view from above with ground observations from below helps scientists get a more complete picture of clouds in our atmosphere. Because clouds can change rapidly, frequent observations are needed.

#### Connections to NGSS Disciplinary Core Ideas:

- ESS2 Earth's System (C, D)
- ESS3 Earth and Human Activity (B, C, D)
- PS4 Waves and their Applications in Technologies for Information Transfer

### Mosquito Habitat Mapper

**What citizen scientists can do:** Locate, identify, and photograph mosquito breeding sites in your community; sample and determine whether the larvae you find could potentially mature into vectors of mosquito borne disease; and reduce the risk of disease by dumping water containers and monitoring the environment.



This investigation focuses on an immature developmental stage (larva) of mosquitoes that lives in water, doesn't bite, and doesn't pose a health hazard to humans.

Most of the Mosquito Habitat Mapper observations can be done with just a smart phone or tablet, and the citizen scientist can elect to just take those observations. Optional steps include taking a sample and identifying the larva genus, which require some inexpensive equipment and supplies (e.g., a clip-on lens that magnifies the image 60x - 100x, turkey baster, pipette, plastic bag, and white paper plate).

**Why?** NASA scientists can't see mosquitoes from space, but they can observe environmental conditions and develop models predicting where outbreaks of mosquito-borne disease will occur. Ground observations of mosquito breeding sites will help refine and validate these models. This data is also useful for public health officials.

#### Connections to NGSS Disciplinary Core Ideas:

- ESS2 Earth's System (C, D)
- ESS3 Earth and Human Activity (C, D)
- ETS2 Engineering, Technology, and the Application of Science (B)
- LS2 Ecosystems: Interactions, Energy, and Dynamics (A)

## Land cover – Coming summer 2018

**What citizen scientists can do:** Photograph the land and identify what is there (forests, city, crops, etc.). Compare what you see to a satellite land cover map to report changes or differences.

**Why?** Land cover—what is on the surface of the land—plays a role in our water quality, temperature and weather patterns, and in the carbon cycle. It is the source of our food and our home, and yet, we don't have detailed and complete land cover maps. By classifying land cover, citizen scientists will help scientists verify satellite observations of land cover, fill in details that satellites don't record well, and update places where land cover has changed.

By becoming a GLOBE Observer, learners engage in the practices of science and join the GLOBE research community and contributing important scientific data to NASA and GLOBE, your local community, and students and scientists worldwide.

#### Connections to NGSS Disciplinary Core Ideas:

- ESS3 Earth and Human Activity (B, C, D),
- ESS2 Earth's Systems (C),
- PS4 Waves and Their Applications in Technologies for Information Transfer (B,C)

Learn more and download the app at:

<https://observer.globe.gov>

## About The Author

GLOBE Observer is part of The GLOBE Program, and is carried out by an extended team that includes the NASA Earth Science Education Collaborative – a partnership between NASA Earth science divisions at three NASA Centers: **Goddard Space Flight Center, Jet Propulsion Laboratory, and Langley Research Center and the Institute for Global Environmental Strategies (IGES)**. GLOBE Observer is conducted in close coordination with the GLOBE Implementation Office (GIO) and GLOBE Data and Information System (DIS).