

The background of the image is a clear blue sky filled with soft, white, wispy clouds that appear to be blowing from the left. The clouds are thin and elongated, creating a sense of movement.

Making a Cloud Observation

Scientists need accurate data on clouds to understand their impact over time. Satellites only see the **top of the clouds** while we see the **bottom of clouds** —together we get a much more complete picture of clouds and their effects in the atmosphere.



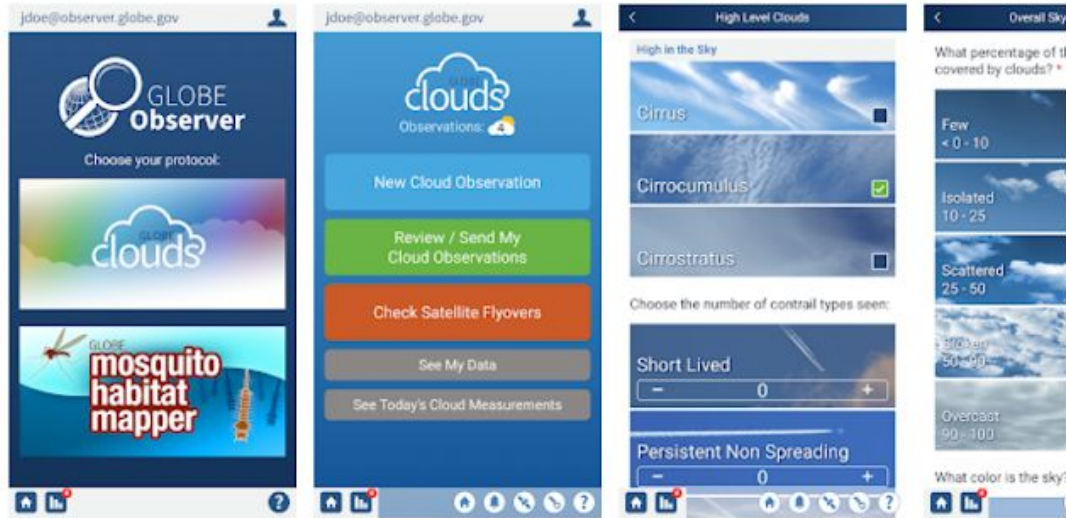
Satellite view of clouds over the East Coast of USA



Ground level view of clouds over the East Coast of USA

**Why is it important to observe
clouds both from above and
from below?**

We can serve as neighborhood scientists in the observation and reporting of cloud conditions from the ground in coordination with satellite observations. Cloud data can be submitted using the **GLOBE Observer App** or by going to **observer.globe.gov**

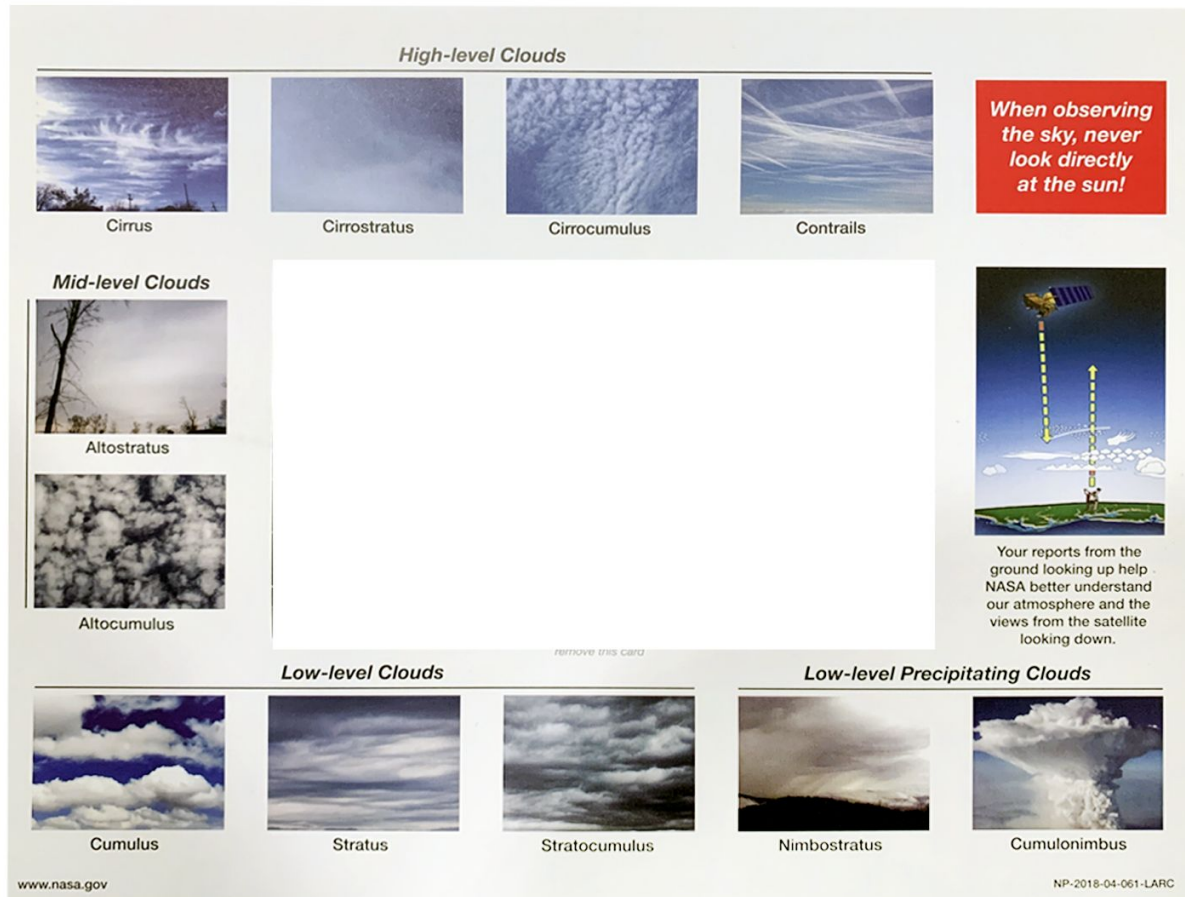


Scan to download the
GLOBE Observer App



One useful tool while making observations is the identification frame included in the **Neighborhood Science Kit**.

One side of the frame includes images of **cloud types** to compare to the conditions you are observing.



On the other side of the frame, there are reference images to determine the **sky color**, which should be referenced to the clear sky at 45° from the horizon.

Sky visibility can also be compared to the reference images below the frame's window by looking across to objects on the horizon.

National Aeronautics and Space Administration



Sky Color: What's the deepest shade of blue?

 Look Up 45°

Deep Blue Blue Light Blue Pale Blue Milky



Choose your protocol:

clouds

mosquito habitat mapper

Land Cover

Visit the Observer Website

remove this card

Sky Visibility: What does a distant object along the horizon look like?

 Look Across

Unusually Clear Clear Somewhat Hazy Very Hazy Extremely Hazy

Participate in NASA Science:

Download the GLOBE Observer app and contribute your observations.
observer.globe.gov

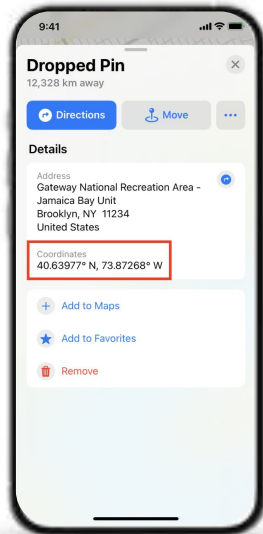


Sky observation data is useful to scientists when paired with **date**, **time**, and GPS **location** information.

Included in the Neighborhood Science Kit is a **Mini GPS location finder** for providing accurate observation location data.



Two GPS Location Recording Methods



Smartphone Map App

- high accuracy
- instant satellite connection
- requires cell phone service

***preferred method**



Mini GPS Navigation Receiver

- medium accuracy
- requires 5-10 mins to connect
- no cell service required

***secondary method**

A Successful Cloud Observation Includes

Location Providing your exact location is crucial for scientific analysis and matching with satellite data.

Overall Cloud Cover Reporting on the percentage of the sky covered by clouds, regardless of type or height, is essential.

Surface Conditions Describing the surface conditions beneath the clouds, such as the presence of snow, ice, or standing water, helps scientists better interpret the atmospheric data collected.

Cloud Types Identifying and reporting the types of clouds present provides valuable information about atmospheric conditions and processes.

Cloud Opacity Describing how much sunlight passes through the clouds offers insights into their structure and composition.

Sky Conditions and Visibility Observing and reporting on factors like sky color and visibility helps characterize the overall atmospheric state and the presence of aerosols or other particles.

Photographs Taking photos of the sky and clouds provides visual documentation that can be invaluable for scientists in their research.



**Happy
Observing!**