S'COOL Rover

As a roaming S'COOL Cloud Observer, A Rover, you will collect data on cloud type, height, cover and related conditions. Your observations help us to validate satellite data and give us a more complete picture of clouds in the atmosphere and their interactions with other parts of the integrated global Earth system. Observations are sent to NASA for comparison to similar information obtained from satellite. Reports from a wide range of places are helpful to assess the satellite data under different conditions.

S'COOL Rover

The Rover site provides all the information that you need to make and report a cloud observation. We welcome participation from any interested observers, especially from places where official weather observations are few and far between.

This Tutorial can help get you started!

S'COOL Rover

Rover Observations are simple and involve 4 basic steps:

1. Determining Satellite Overpass Times
2. Observing Cloud Properties
3. Reporting Your Observations to NASA
4. Exploring the Data

1. When to Observe

- Because cloud properties change rapidly, clouds must be observed at about the same time as the satellite passes over.

- Visit the Rover site to calculate when a satellite will view your area.

http://scool.larc.nasa.gov/en_rover_overpass.html

- The overpass schedule will provide daily and nightly times when a satellite passes over your area.

1. When to Observe

- The Terra overpass is in the morning, generally between 10am and noon.
- The Aqua, CloudSat, CALIPSO, and NPP overpass times are in the afternoon, between 1 and 3pm. Observations can be made during one or both periods depending on your schedule.
- The Overpass schedule will provide satellite overpass times in UTC time (Universal Time Coordinated) and Local time.
- Observations should be recorded within +/- 15 minutes of the local overpass time and must be recorded using the 24 hour time format. For example, 2:52 pm would be 14:52.

2. What to Observe and Report

- Use the Rover report form to report cloud properties.
- No instruments are needed
- Surface conditions are included in a Rover report and are important. For example, snow and ice can look like clouds from space.
- Temperature and barometric pressure are also useful observations to report if available.

2. What to Observe and Report

- The report form focuses on 4 cloud identification properties:
  A. Type
  B. Height
  C. Cover
  D. Visual Opacity

2. What to Observe and Report

A. Type

The S'COOL Rover methods consider 12 different cloud types based on their

- shape,
- altitude, and
- whether they are producing precipitation.

An online cloud chart is available with examples

http://science-edu.larc.nasa.gov/SCOOL/cldchart.html

2. What to Observe and Report

B. Height

Cloud height describes the altitude of a cloud.

- Low Clouds
- Mid-level Clouds
- High Clouds

Generally in S'COOL height is set by cloud type. You can find some tips to aid identification here:

http://science-edu.larc.nasa.gov/SCOOL/lintips.html

2. What to Observe and Report

C. Cover

Cloud cover describes how much of the sky is covered

- Clear (0 to 5%)
- Partly Cloudy (5 to 50%)
- Mostly Cloudy (50 to 95%)
- Overcast (95-100%)

More information on determining cloud cover:
http://science-edu.larc.nasa.gov/SCOOL/cldfrac.html

2. What to Observe and Report

D. Opacity

Visual opacity *of a cloud* is defined by how much sunlight is getting through the cloud

- Transparent
- Translucent
- Opaque

Examples and tips are available:

http://science-edu.larc.nasa.gov/SCOOL/opacity.html

3. Report Your Observations

Enter your observation into the Rover On-Line report form

Observations do not have to be sent immediately

For each rover report you will need to enter

- A self designated nickname
- Your email address (to receive satellite data)
- And your location in latitude and longitude

4. Explore Data

The final step of the Rover Process is to compare you results with the retrieved satellite data.

Because the satellite data does have to be processed it takes some time to receive the match comparisons. When ready, you will receive an email.

Comments on the level of agreement between ground and satellite are invited.

4. Explore Data

All ground and satellite data that have been processed are accessible on the internet via the Rover Database.

To see these results visit the Rover site and click Explore Data.

Search for observations by either a date range or your nickname.

For permanent, school or museum-based observation sites, please visit the main web page for the project, Students' Cloud Observations On-Line, to register to participate.

Contact the S'COOL team scool@lists.nasa.gov if you need help.