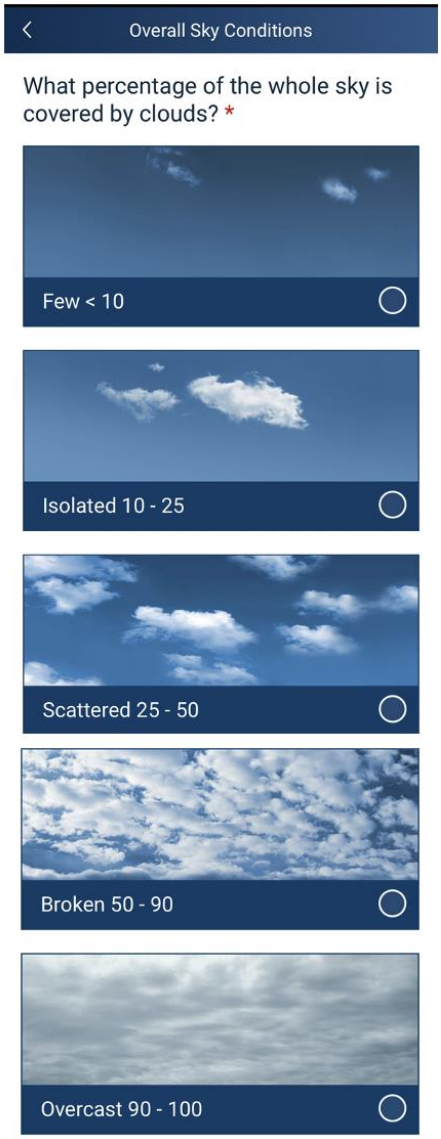
Estimating Wind Speeds with Visual Clues			
Beaufort number	Description	Speed	Visual Clues and Damage Effects
0	Calm	Calm	Calm wind. Smoke rises vertically with little if any drift.
1	Light Air	1 to 3 mph	Direction of wind shown by smoke drift, not by wind vanes. Little if any movement with flags. Wind barely moves tree leaves.
2	Light Breeze	4 to 7 mph	Wind felt on face. Leaves rustle and small twigs move. Ordinary wind vanes move.
3	Gentle Breeze	8 to 12 mph	Leaves and small twigs in constant motion. Wind blows up dry leaves from the ground. Flags are extended out.
4	Moderate Breeze	13 to 18 mph	Wind moves small branches. Wind raises dust and loose paper from the ground and drives them along.
5	Fresh Breeze	19 to 24 mph	Large branches and small trees in leaf begin to sway. Crested wavelets form on inland lakes and large rivers.
6	Strong Breeze	25 to 31 mph	Large brances in continous motion. Whistling sounds heard in overhead or nearby power and telephone lines. Umbrellas used with difficulty.
7	Near Gale	32 to 38 mph	Whole trees in motion. Inconvenience felt when walking against the wind.
8	Gale	39 to 46 mph	Wind breaks twigs and small branches. Wind generally impedes walking.
9	Strong Gale	47 to 54 mph	Structural damage occurs, such as chimney covers, roofing tiles blown off, and television antennas damaged. Ground is littered with many small twigs and broken branches.
10	Whole Gale	55 to 63 mph	Considerable structural damage occurs, especially on roofs. Small trees may be blown over and uprooted.
11	Storm Force	64 to 75 mph	Widespread damage occurs. Larger trees blown over and uprooted.
12	Hurricane Force	over 75 mph	Severe and extensive damage. Roofs can be peeled off. Windows broken. Trees uprooted. RVs and small mobile homes overturned. Moving automobiles can be pushed off the roadways.

Source: National Weather Service Portland, http://weather.gov/portland

Estimating Cloud Cover Activity Guide

Make simple models to practice estimating the percentage of cloud cover – one of the sky observations made with GLOBE Observer Clouds.

Introduction



Estimating the percentage of the sky covered by clouds is subjective, but scientifically important data. Using the free GLOBE Observer mobile app, volunteers can report observations of sky conditions to NASA, including percentage of the sky covered by clouds. This activity could be the first step in learning how to make sky observations using GLOBE Observer Clouds.

Even experienced sky observers have difficulty estimating cloud cover. It can be tricky because not all clouds are the same shape nor are they evenly distributed in the sky. This seems to also be a result of our tendency to underestimate the open space between objects in comparison to the space occupied by the objects themselves, in this case the clouds.

In this activity, participants will make a cloud scene with paper. They use white paper to resemble clouds and glue them onto a piece of blue paper resembling the sky. This activity helps to visualize what different percentages of the sky could look like, and that the same percentage could look very different depending on several factors, including the kind and size of clouds and where they are in the sky.

Time

20 – 30 minutes, this activity can go longer depending on group size and discussion.