

# Cloud and Contrail Visual Opacity

## Field Guide

 **NEVER look directly at the Sun!**

### Task




If clouds are present, observe how much sunlight they let through to the Earth surface, information on their opacity. Scientists use opacity rather than thickness because it means something different. When studying the radiative effects of clouds, we are interested in how much sunlight they let through (opacity), not in how much vertical space they take up (thickness).

### What You Need

- [Cloud Data Sheet](#)
- [GLOBE Cloud Chart](#)
- [GLOBE Data Entry options](#)

### In the Field

1. Estimate how much light the cloud is letting through to the Earth's surface.
2. Classify visual opacity for clouds on each level (low, mid, and high).
  - Reference your shadow for help:
    - Transparent clouds in front of the Sun - crisp shadow with clear edges
    - Translucent clouds in front of the Sun - less crisp shadow with edges starting to become fuzzy
    - Opaque clouds in front of the Sun - very fuzzy and difficult or impossible to see shadow
3. Record which opacity classification best matches what you observe on each level.

| <b>Visual Opacity Classification</b>  |  |
|---|--|
|  | <p><b>Transparent</b></p> <p>This describes thin clouds through which light passes readily, and through which you can even see blue sky. Note the milky bluish-whitish appearance of the cirrus clouds (left).</p>   |
|  | <p><b>Translucent</b></p> <p>This describes medium-thickness clouds that let some sunlight through, but through which you cannot see blue sky. There may be some milky bluish-white near the edges, and a bit of gray under the thickest parts, but these clouds are mostly bright white.</p>            |
|  | <p><b>Opaque</b></p> <p>This describes thick clouds which do not allow light to pass directly, although light can diffuse through them. Such thick clouds often look gray. When the sky is overcast, or when these clouds are in front of the Sun, it is impossible to tell the location of the Sun.</p> |