

Surface Temperature Protocol

Field Guide

Task

Measure surface temperature.

What You Need

- Surface Temperature Data Sheet*
- Hand-held Infrared Thermometer (IRT)
- Thermal Glove (use when the air temperature at the study site varies more than 5 degrees Celsius from the air temperature of where the IRT has been stored.)
- Ruler or Meter Stick, (if snow cover is present)
- Pencil or pen
- GLOBE Cloud Chart
- Accurate Watch

In The Field

1. When necessary, either wrap the IRT in a Thermal Glove before you go to your study site or place the IRT outdoors for at least 30 minutes prior to data collection. For more details, refer to the *Thermal Glove -or- Place IRT Outdoors For At Least 30 Minutes* section of this protocol.
2. Complete the top section of your *Surface Temperature Data Sheet* (fill out the *Supplemental Site Definition Data* section if you are taking Surface Temperature Measurements at a particular site for the first time, or if one of the values in that section has changed)
3. Take cloud observations following *GLOBE Cloud Protocols*.
4. If there is no snow on the ground anywhere in your Site, then check either “Wet” or “Dry” for the Site’s Overall Surface Condition field on your *Surface Temperature Data Sheet*.
5. Check the box that corresponds to the method used to prevent the IRT from experiencing thermal shock.
6. Pick 9 Observation Spots that are in open areas within your site and are at least 5 meters apart. The Spots should also be away from trees and buildings that create a shadow on the land and in locations that have not been recently disturbed by people or animal traffic. (Note: It is best that you take readings at the 9 individual Observation Spots within seconds of each other.)
7. Go to one of the nine Observation Spots and stand so that you do not cast a shadow on the Spot.
8. Record the Current Time and its corresponding Universal Time (UT) on your *Surface Temperature Data Sheet*.

9. Hold the infrared thermometer (IRT) (wrapped in a Thermal Glove when necessary) with your arm extended straight out and point the instrument straight down at the ground.
10. Hold the IRT (wrapped in a Thermal Glove when necessary) as still as possible. Press and release the recording button. [You MUST release the recording button for the instrument to register and hold your spot's surface temperature.]
11. Read and record the surface temperature from the digital display screen located on the top of the IRT. (Note: Surface Temperature is recorded in Celsius to the nearest tenth degree, ie. 25.8)
12. Measure and record the snow depth in millimeters at the Observation Spot.
13. Repeat steps 7-12 at each of the remaining eight Observation Spots.
14. Record any other information that explains the environmental conditions of the day or site in the Comments field.

a.



b.



The above pictures show correct use of IRT, a) without a Thermal Glove and b) with Thermal Glove

