



# GLOBE

## Soil Moisture — Transect Method Data Sheets

### Print the Soil Moisture Data Sheet:

- [Soil Moisture Transect Data Sheet](#)

### Or select an alternative data sheet option below:

- [Soil Moisture Transect: New Site](#) (2 pages)
  - Use this the first time you visit a sampling site to record site definition data
- [Soil Moisture Transect with field guide](#) (3 pages)
  - This data sheet has the field guide incorporated
- [Soil Moisture Transect: Simplified](#) (2 pages)
  - Use this data sheet when working with those new to GLOBE and collecting data.

# GLOBE Soil Moisture Transect Data Sheet

Name: \_\_\_\_\_ Site Name: \_\_\_\_\_

Date: \_\_\_\_\_ Time (local): \_\_\_\_\_

Soil State:     Measurable     Frozen Ground     Snow on Ground  
                   Frozen water on ground     Hail on ground     Graupel (snow pellets) on ground

*\*If anything except Measurable is selected, stop here!\**

Drying Method:     95–105°C oven     75–95°C oven     Other: \_\_\_\_\_

Average drying time: \_\_\_\_\_ hours \_\_\_\_\_ minutes

Record mass to the nearest 0.1 g!

Soil Moisture Measurements			A	B	C	(A-B)/(B-C)
Sample Number	Distance to start of transect (m)	Container ID#	Wet mass: mass of wet soil and container (g)	Dry mass: mass of dry soil and container (g)	Mass of empty container (g)	Soil water content (g/g)
1						
2						
3						
4						
5						
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10						
11						
12						
13						

\*Include any comments on the back of this data sheet!

# GLOBE Soil Moisture Transect Data Sheet: New Site (page 1)

Name: \_\_\_\_\_ Site Name: \_\_\_\_\_

Date: \_\_\_\_\_ Time (local): \_\_\_\_\_

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## New Site Definition

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

Elevation: \_\_\_\_\_ m

Surface State:  Natural  Plowed  Graded  Backfill  Compacted  Other

Surface Cover:  Bare Ground  Short Grass (under 10 cm)  Long Grass (over 10 cm)

Canopy Cover:  Open  Some Trees (within 20 m)  Canopy Overhead

## Site Metadata

Length of line: \_\_\_\_\_ m Compass bearing: \_\_\_\_\_ Sample spacing: \_\_\_\_\_ m

Site comments:

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Soil State:  Measurable  Frozen Ground  Snow on Ground

Frozen water on ground  Hail on ground  Graupel (snow pellets) on ground

*\*If anything except Measurable is selected, stop here!\**

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Drying Method:  95–105°C oven  75–95°C oven  Other: \_\_\_\_\_

Average drying time: \_\_\_\_\_ hours \_\_\_\_\_ minutes

# GLOBE Soil Moisture Transect Data Sheet: New Site (page 2)

Soil Moisture Measurements			A	B	C	(A-B)/(B-C)
Sample Number	Distance to start of transect (m)	Container ID#	Wet mass: mass of wet soil and container (g)	Dry mass: mass of dry soil and container (g)	Mass of empty container (g)	Soil water content (g/g)
1						
2						
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4						
5						
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13						

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 Comments:

**Record mass to the nearest 0.1 gram!**

# GLOBE Soil Moisture Transect Data Sheet and Field Guide (page 1)

Name: \_\_\_\_\_ Site Name: \_\_\_\_\_

Date: \_\_\_\_\_ Time (local): \_\_\_\_\_

Soil State:       Measurable       Frozen Ground       Snow on Ground  
 Frozen water on ground       Hail on ground       Graupel (snow pellets) on ground

*\*If anything except Measurable is selected, stop here!\**

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## Soil Moisture: In the Field

1. Take a compass reading along your transect line and record the bearing.  
Compass bearing: \_\_\_\_\_
2. Stretch out a rope or measuring tape along the transect. The transect should be about 50 m with sample points should every 5 m along the transect, plus two extra samples taken at one end of the transect within 25 cm of the end point.  
Transect length: \_\_\_\_\_ Sample spacing: \_\_\_\_\_
3. Locate your first sampling point and cut or pull away any grass or ground cover.
4. Dig a hole 10–15 cm in diameter and 5 cm deep. Leave the soil loose in the hole.
5. Remove from the loose soil any rocks larger than a pea (about 5 mm), large roots, worms, grubs, and other animals.
6. Use your trowel to fill a soil container with at least 100 g of the loose soil. If a soil oven will be used to dry the soil, a can (not a plastic bag) should be used as a sample container.
7. Immediately seal the container to hold in the moisture.
8. Record the container ID# and distance to the start point of the transect on the data table (page 3).
7. Continue to collect a soil sample at each sampling point along the transect. Seal each container and record the ID# and distance from the start point of the transect on the Data Sheet. Including the extra two samples taken near the end point, you should have 13 containers of soil when you finish.
8. Take your samples back to the lab and follow the In the Lab Field Guide (page 2).

# GLOBE Soil Moisture Transect Data Sheet and Field Guide (page 2)

Drying Method:  95–105°C oven  75–95°C oven  Other: \_\_\_\_\_

Average drying time: \_\_\_\_\_ hours \_\_\_\_\_ minutes

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## Soil Moisture: In the Lab

1. Calibrate the balance according to the manufacture's instructions.
2. Place the sample in the container on the balance. If using a bag, shake it to move the soil to one end of the bag. Fold the bag so the soil occupies as little space as possible and can be placed entirely on the scale.
3. Weigh and record the mass to the nearest 0.1 g as the “Wet mass” next to the appropriate container ID# in the data table (page 3).
4. Repeat this step for all sample containers.
5. Open the containers and dry using one of the following options:
  - A 250-watt heating lamp (Dries in about 2–3 days)
  - A drying oven (Use cans only! Dries overnight)
  - Air drying (Dries in 2–5 days)
6. Determine when the sample is dry by weighing it, drying for a few more hours or another day, and then weighing it again. When the mass of the sample does not change, it can be considered dry.
7. Determine the mass of each dry sample to the nearest 0.1 g and record it as the “Dry mass” next to the appropriate container ID# in the data table.
8. Determine the mass of the empty containers if you have not yet done so. Record the mass in the data table.
9. Dried soil can be returned to fill in the sample holes on site.

# GLOBE Soil Moisture Transect Data Sheet and Field Guide (page 3)

Name: \_\_\_\_\_ Site Name: \_\_\_\_\_

Date: \_\_\_\_\_ Time (local): \_\_\_\_\_

Soil Moisture Measurements			A	B	C	(A-B)/(B-C)
Sample Number	Distance to start of transect (m)	Container ID#	Wet mass: mass of wet soil and container (g)	Dry mass: mass of dry soil and container (g)	Mass of empty container (g)	Soil water content (g/g)
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12						
13						

Comments:

Record mass to the nearest 0.1 gram!

# GLOBE Soil Moisture Transect Data Sheet: Simplified (page 1)

Name: \_\_\_\_\_

Site Name: \_\_\_\_\_

Date: \_\_\_\_\_ Time (local): \_\_\_\_\_

## What is the soil like?:

- I can collect soil samples (Measurable)       Frozen Ground       Snow on Ground  
 Frozen water on ground       Hail on ground       Graupel (snow pellets) on ground

*\*If anything except Measurable is selected, stop here!\**

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## Record notes about the site here:

After you collect your samples and bring them to the lab, fill in this section:

### Soil Drying Method:

- 95–105°C oven       75–95°C oven       Other: \_\_\_\_\_

Average drying time: \_\_\_\_\_ hours \_\_\_\_\_ minutes

# GLOBE Soil Moisture Transect Data Sheet: Simplified (page 2)

In the field

In the lab

Record mass to the nearest 0.1 g!

Soil Moisture Measurements			A	B	C	(A-B)/(B-C)
Sample Number	Distance to start of transect (m)	Container ID#	Wet mass: mass of wet soil and container (g)	Dry mass: mass of dry soil and container (g)	Mass of empty container (g)	Soil water content (g/g)
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