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 MoistureTransect: 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 for youth (2 pages)
  - Use this data sheet when working with young researchers

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						
6						
7						
8						
9						
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): _____

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:

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

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						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

Record mass to the nearest 0.1 gram!

Comments:

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!

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

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)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						

Comments:

Record mass to the nearest 0.1 gram!

GLOBE Soil Moisture Transect Data Sheet: Youth (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!

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: Youth (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)
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						