

Site Characterization Worksheet

1. Name and geographic location of site (latitude, longitude)

2. Description of reasons that this site was picked as representative site

3. Soil types (include variability at depths if applicable)

4. Samples taken for soil density? Yes No

5. Samples taken for additional soil analysis and type of soil analysis?

6. Type of sensor and depth each sensor installed

7. Are sensor cables labeled with appropriate depth? Yes No

8. Initial readings of each sensor after installation

9. Are any additional soil or environmental measurements being taken?

10. Are there any upcoming events that may affect data collection? Who is the contact person to learn more about the timing of these events?



Installing Decagon Soil Moisture Sensors

Best practices to obtain accurate measurements

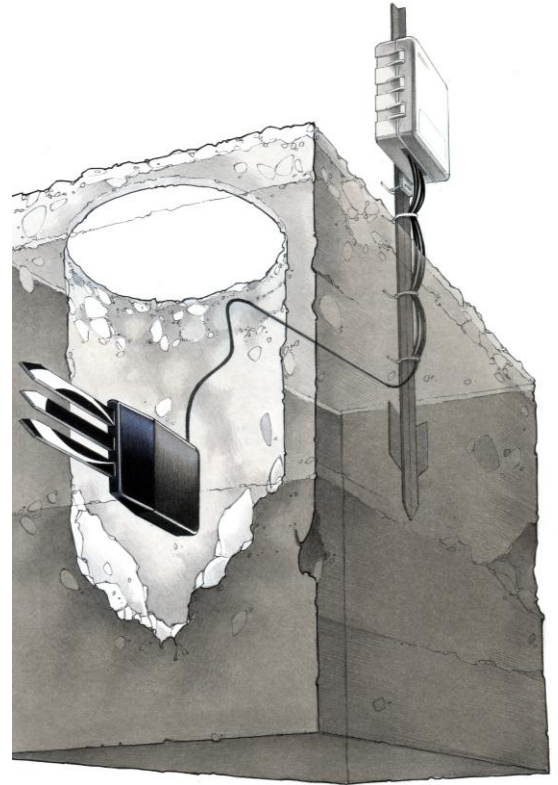
We have spent the last ten years perfecting the technology behind our family of soil moisture sensors. However, a bad installation of a great sensor will still lead to bad data. While good installation techniques are not hard or time consuming, taking the time to learn correct practices and precautions will lead to less time later trying to figure out data that don't make sense. Common installation problems are:

- Air gaps
- Cable damage during installation or after installation
- Preferential flow paths down cable

Required tools

We have found the following tools useful during a sensor installation, but do not limit yourself to this list:

- Shovel or bucket auger
- ProCheck
- Installation tool
- Data logger
- Mounting stake and ties for data logger
- Electrical conduit or PVC to protect aboveground cables
- Medical tape for labeling cables
- Site characterization worksheet



Steps to a good installation

1. Familiarize yourself with all instrumentation and software *before* you go out into the field. If you have the time, calibrating your own sensors will teach you how they work.
2. Dig a trench or auger a flat-bottomed hole to the desired depth.
3. Push the sensor (using your hands or the installation tool) into undisturbed soil. Make sure that the sensor is pushed straight in, leaving no air gaps.
4. Using the ProCheck, take a reading of the sensor. Is the reading reasonable for this soil type?
5. Carefully backfill the sensor and cable to the approximate bulk density of the surrounding soil. Continue to check the readings of the sensor using the ProCheck.
6. Confine any cables that are above ground in a PVC pipe to protect against rodent damage.
7. Plug your sensor into the data logger and configure your data logger.

Tools and resources for sensor installations

Installation videos

A Typical Installation of Decagon Soil Moisture Sensors- ECH2O sensors are rugged, inexpensive, and accurate. Unfortunately, they do not install themselves. In this video, Decagon research scientist Doug Cobos and production manager Robin Haight demonstrate a typical installation of Decagon 5TE sensors at various depths using tools from the hardware store. Visit <http://www.decagon.com/education/video-index/> to see this video and others.

Sensor Installation Demo



Make your life easier with...

ProCheck



Take readings every step of the installation with the ProCheck. The ProCheck can help you identify potential air gaps, compaction issues, and even severed cables. It is a must-have for any large installation.

Home-made tools

Need to install a sensor down a deep hole? Visit the hardware store and purchase a ½ inch (1.27 cm) pvc pipe and cut a notch in the end for a quick, inexpensive installation tool. What about a pilot hole tool? You can use a putty knife to create a pilot hole for the 10HS and EC-20 sensors.



Decagon installation kit

Decagon's machined installation tool allows you to create a pilot hole to install larger (10HS, EC-10, EC-20) sensors. The insertion tool can also be used to create a pilot hole in a trench for horizontal installations.

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