Ceptometer Protocol

Two stations are present (A and B) with three sensors each (A1, A2, A3, or B1, B2, B3). Four positions in the field are used (furrows between plots 7403 and 7404, 7407 and 7408, 7411 and 7412, and 7415 and 7416). In each position, three mounting poles are present. The mounting poles increase in height from south to north and are positioned such that the attached ceptometers are fully within the planted area. The northmost mounting pole features an inserted pipe with attached solar panel. The solar panel is mounted to the north of the mounting pole. The face of the panel is tilted slightly to the south to maximize light exposure. The ceptometers are mounted on the south of the mounting poles and aligned such that the diffuser surface is coplanar to the ground and the long axis is at a 45° angle to the planted rows with the east side being north of the west side. The ceptometers are calibrated and must be plugged into the cable with the matching label. On a given day X, station A will be installed in position 7407/7408 and station B will be installed in position 7403/7404. On alternate days Y, station A will be installed in position 7415/7416 and station B will be installed in position 7411/7412. On the morning of Wednesday and Friday, the station will be moved to the corresponding position. The station box will be placed atop a cinderblock located at the northmost edge of the furrow for the given plot position. When powered, data will collect automatically at a 1 Hz interval. Internal memory will fill approximately 22 days after the initiation of data collection. Data should be offloaded and erased from the logger more frequently than 22 days. It is recommended to offload the data prior to moving the system to a new location and erase the datalogger memory before beginning the new data collection so as to avoid mixing data between positions.

*Day Schedule (Tentative; subject to weather and scheduling):*

Tuesday (X)

Wednesday (Y)

Thursday (Y)

Friday (X)

To power the datalogging system:

1. Open box for cabinet using latches.
2. Connect the spade connector to the positive terminal of the battery. The datalogger should exhibit a slow red flash.
3. Slowly move the solar panel into position. Slow motion is necessary to avoid voltage spikes. The solar panel will be used to charge the battery.
4. Close the cabinet.

To remove power from the datalogging system:

1. Open box for cabinet using latches.
2. Slowly move solar panel such that it no longer is exposed to sunlight.
3. Disconnect the spade connector from the positive terminal of the battery.
4. Close the cabinet.

To disconnect the ceptometers from the datalogging system:

1. Grasp the connector at the ceptometer end.
2. Unscrew the locking seal.
3. With a grip on the ends of the connector, unplug the cable from the ceptometer. Do not pull on the cable as it may break internal connections in the ceptometer and irreparably damage it.

To connect the ceptometers to the datalogging system:

1. Grasp the connector at the ceptometer end and the connector at the end of the system cable with matching labels.
2. Insert the male end of the barrel connector into the female end of the barrel connector.
3. Tighten the locking seal.

To collect data from the datalogging system:

1. Open box for cabinet using latches.
2. Connect USB cable between datalogger and computer.
3. Open PC200W or PC400 software.
4. Connect to the datalogger with the label corresponding to the station.
5. Go to the Collect Data tab.
6. Select the table with the output data (Table1).
7. Change the output such that it has a unique filename.
8. Select the option to collect all data from the datalogger.
9. Select Start Data Collection.
10. When data collection is complete, disconnect from the logger in PC200W or PC400.
11. Disconnect the USB cable from the devices.
12. Close the cabinet.

To erase data from the datalogging system:

1. Open box for cabinet using latches.
2. Connect USB cable between datalogger and computer.
3. Open PC200W or PC400 software.
4. Connect to the datalogger with the label corresponding to the station.
5. From the Datalogger menu, select Station Status.
6. Select the Table Fill Times tab.
7. Select Reset Tables.
8. Disconnect from the logger in PC200W or PC400.
9. Disconnect the USB cable from the devices.
10. Close the cabinet.