

sensing technology for the soil environment

Agenda (approx.)

Monday, July 9

6:00 PM	Welcome (Michael Hamilton, Director, James Reserve)
6:15	Overview of Embedded Networked Sensing (Deborah Estrin, Director, CENS)
7:15	Dinner

Tuesday, July 10

Crash Course in Soil Ecology

7:00 AM	Breakfast
8:00	Lecture: The Soil Environment and Dynamics: Who, What, Where, When (Mike Allen)
9:00	Lecture: Soil Respiration (Rodrigo Vargas, et al.) Measuring respiration: (A) gradient flux calculations, input parameters (CO ₂ conc- (Vaisala), H ₂ O, Temp, texture) and (B) chamber methods (LiCor). Describe parameters needed and how to measure, downloading and data
10:00	Break
10:30	Lecture: N Cycle and Measurement (Mike Allen and Kuni Kitajima)
11:00	Soil Microbial Diversity and Dynamics (Einav Myzlish-Gati, et al.) Including minirhizotron observations and molecular analysis
12:00 PM	Lab: Automated Minirhizotron, AMR (Mike Taggart)
12:30	Lunch

Field Measurements: AMARSS Transect

1:30 Soil Respiration (Rodrigo Vargas, Kuni Kitajima)
GPR (Hector Estrada)
Minirhizotron (Laurel Salzman)
3:00 Break and Reorganize

Field Measurements: Big Pine

3:30 Soil Bicrobes, Buried Slide Technique, Soil N Measurements
4:30 Break and Reorganize
5:00 Compilation and Analysis of Data
6:00 Dinner
7:00 Re-measure Soil Respiration for Evening Conditions
8:00 Analyze and Discuss Data

Wednesday, July 11

Soil Energy Balance Theory, Sensors, and Data (Eric Graham)

Automated Data Collection and Robotics (Yeung Lam)

Above-ground Plant Dynamics Related to Soil CO₂ Cycles (Eric Yuen and Eric Graham)

7:00 AM Breakfast
8:00 Energy Balance, Sap Flow, Phenology Sensing: Lectures on Theory, Instrumentation, and Models
12:30 Lunch
1:30 Field Measurements in the AMARSS Transect
Demonstration of Sampling System
Placement of Sap Flow Sensors
6:00 Dinner
7:00 Data Exploration and Discussion

Thursday, July 12

Creating a Soil Node

7:00 AM Breakfast
8:00 Install a Soil Sensing Node (Dig Holes, Place Tubes and Sensors)
12:30 Lunch
1:30 Continue Installation of Sensing Node