

FALL 2015

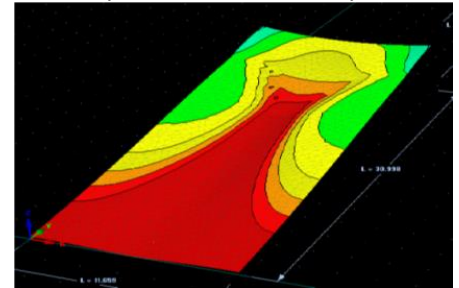
INSTRUCTOR: Markus Tuller

LOCATION & TIME: Mondays 2:00-4:00 PM Vet. Sci. 105

CREDITS: 3

PREREQUISITES: MATH 254 (can be waived for qualified students)

Biosphere 2 – LEO Hillslope

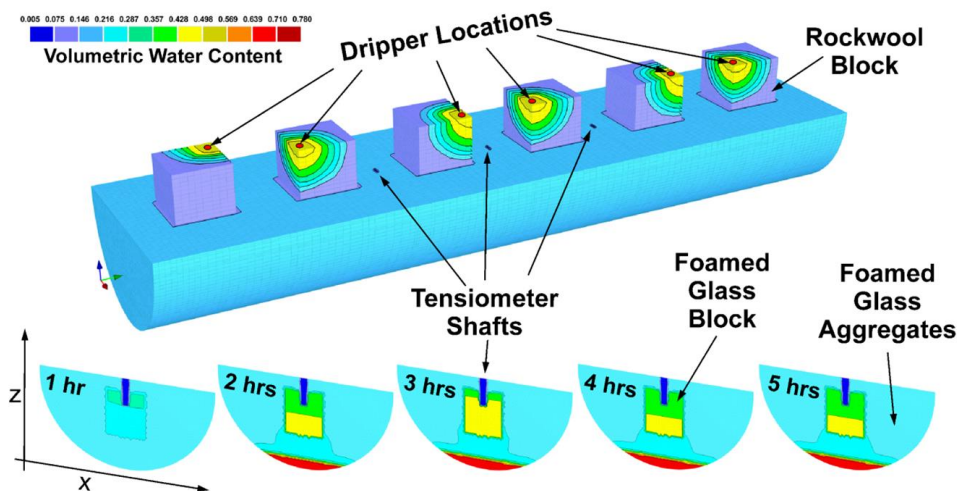


SCOPE:

The “Modeling of Mass and Energy Flow in Soils” course provides the theoretical and computational basis for understanding and quantifying (coupled) transport of heat, gas, water, solutes and colloids in saturated and unsaturated soils. The course focuses on the physical, chemical and biological principles that control and drive the transport processes in one, two or three dimensions. “Hands on” training is an important aspect of this course with about half of the contact hours reserved for in-class use of state-of-the-art computer codes (HYDRUS 2D/3D) to model transport processes in soils. Halfway through the course, students will form groups and choose a particular problem. A report about the chosen problem set will be due in the week of the finals.

OBJECTIVES:

- Get “hands on” experience with the HYDRUS 2D/3D numerical code.
- Determine relevant transport characteristics of soils and porous media in general.
- Gain familiarity with Richards' and the convection-dispersion equations.
- Gain experience with solving vadose zone transport problems.



Optimization of Greenhouse Growth System