Hydropedology and Dynamic Soil Properties. (S05-lin174029-Oral)

Authors:

- H.Lin* - *Penn State Univ*
- L.P.Wilding - *Texas A and M Univ*
- P.Schoeneberger - *USDA-NRCS, Lincoln, NE*
- D.Wysocki - *USDA-NRCS, Lincoln, NE*

Abstract:

Hydropedology is suggested as an intertwined branch of soil science and hydrology that embraces interdisciplinary and multiscale approaches for studying interactive pedologic and hydrologic properties or processes in the earth's critical zone. Emphasized are bridges to address 1) knowledge gaps between pedology and soil physics or hydrology, 2) scale differences in microscopic, mesoscopic, and macroscopic studies of soil and water interfaces, and 3) data translations from soil survey databases into soil hydraulic properties. Hydropedology establishes a framework for linking dynamic soil properties to soil spatiotemporal variability and for connecting the pedon and the landscape paradigms. Dynamic soil properties are discussed in relation to soil surveys, interpretations, and land use. Five categories of pedotransfer functions are suggested that elaborate the need to use natural landscape concepts of soil bodies in developing databases and pedotransfer functions. We conclude with the need for a dynamic soil properties database to be incorporated into the databases of the National Cooperative Soil Survey program for soil classification, mapping, interpretations, and modeling.

Corresponding Author Information:

Henry Lin
Penn State Univ.
116 ASI Building
University Park, PA 16802

phone: 814-865-6726
fax: 814-863-7043
e-mail: henrylin@psu.edu

Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 1:00 pm

Keywords:

Pedology, Soil Physics/Hydrology, Multiscale bridging, Pedotransfer functions