



Environmental Science
& Policy Program
at Michigan State University

Distinguished Lecture Series

Dr. Robert Horton

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“Soils are a Critical Component of the Earth’s Critical Zone”



10:00 a.m.
Thursday
October 13
273 Giltner Hall

ABSTRACT: Earth’s critical zone is the “heterogeneous, near surface environment in which complex interactions involving rock, soil, water, air, and living organisms regulate the natural habitat and determine the availability of life-sustaining resources.” Soils are a natural resource required for human life. Soils are as vital a resource for sustaining life on earth as are air and water. Soils are the growth medium for plants, which form the base of the terrestrial food chain now supporting over seven billion people. Often only a layer of a meter or less in thickness, soil covers the earth’s terrestrial surface. Soils, and thus human life, are threatened by accelerated erosion, degradation of structure and fertility, and pollution. Soils are composed of heterogeneous mixtures of solids, liquids, and gases, as well as a diverse community of organisms. Fundamental soil knowledge and practical soil management application skills are required for sustainable management of the soil resource. The interactions of fundamental biological, chemical, and physical processes in the presence of complex constituents with spatially and temporally varying organization causes soil science to be an inherently challenging discipline. Surface soils experience dynamic water content and temperature. This talk addresses aspects of the importance of soils and describes recent advances in measuring dynamic surface soil processes.

Co-sponsored by the Department of Plant, Soil
and Microbial Sciences