

日本学術振興会 外国人研究者招へい事業
Special Open Seminar (特別公開セミナー)

Soils are a Critical Component of Earth's Critical Zone

Dr. Robert Horton

(Distinguished Professor, Iowa State University, USA)



Profile: Dr. Robert Horton is recognized internationally for his study of coupled heat and mass transfer in soil. His fundamental work on coupled heat and mass transfer in soil has greatly enhanced understanding of the following: climatology (the importance of surface energy partitioning); water quality (the impacts of soil water and chemical movement); agricultural production (the impact of the near surface environment on seed and root functions); ecosystem products and services (the impact of the near surface soil environment on microbial functions and gas exchange); and environmental investigations (thermal and mass flow methods for remediation of soil pollution).

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 that is 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.

日時:平成29年5月31日 (水) 13:30~14:30

場所 : 生物資源学部棟125教室

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