Spatial Patterns of Soil Water in Fields: A Wavelet Approach. (S01-si162946-Oral)

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Abstract:

Soil water is a key variable in hydrologic processes at the land surface. It has a major influence on a wide spectrum of hydrological processes including flooding, erosion, the fate of chemicals applied in soils, evapotranspiration, land-atmosphere interactions, wetland ecosystems, and pedogenic processes. There is a significant interest in the estimation of soil water over a range of spatial scales. The objective of this study is to examine the scale-dependent and nonstationary soil water content in a field using a wavelet approach. Soil water contents were measured at 97 locations along a 600m long transect in a nonlevel landscape. Temporal stability in soil water content will be examined for different measurement depths and landscape positions using Spearman rank correlation coefficient, spatial coherence, and wavelet spectrum. Topographic and soil controls of the spatial patterns in soil water processes will be analyzed.

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