

## **Session title: Transferring local Understanding of Vadose Zone Processes to the Landscape Scale**

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### **Abstract:**

The characteristic scale of vadose zone processes is the scale of soil profiles since water and matter fluxes are typically vertical. However, the understanding of terrestrial fluxes and processes including the interaction of the vadose zone with neighboring compartments as groundwater and atmosphere requires the representation of water and matter fluxes at a much larger scale of catchments and landscapes. This includes also the movement of lateral water and matter fluxes.

In this session we discuss possible avenues how local understanding can be transferred to a larger scale. The main difficulty is the heterogeneity of the non-transparent subsurface across many different scales. A key question is how to obtain subsurface properties and related model parameters for large areas at high spatial resolution. This session calls for contributions along the following lines: i) remote sensing techniques and geophysical tools to map soil properties and/or related proxies in a spatially continuous way, ii) methods to obtain information about properties along the vertical soil profile from measurement at the soil surface, iii) pedotransfer functions to deduce process parameters from available proxy data, iv) estimation of the spatial distribution of soils and soil functions using pedogenetic, geomorphologic, and hydrologic models, and v) analysis of spatial data from heterogeneous sources to obtain information on soil properties.