



## **Extracting Soil Hydrologic Parameters from Long Term Records**

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Soil moisture governs vertical fluxes in the critical zone. The model parameters of saturation, field capacity, and permanent wilting point have historically been determined by laboratory methods. This approach is challenged by issues of scale, boundary conditions, and soil disturbance. We present four methods to determine these values from long term continuous soil water content monitoring records.

The monitoring sites for the trial study represent a range of soil textures and depths, effective precipitation and plant cover types in a semi-arid climate. The records exhibit attractors (high frequency values) that correspond to field capacity and the PEL at both annual and longer time scales, but the field saturation values vary by year depending on seasonal wetness in the semi-arid setting. The analysis for five sites in two watersheds is supported by comparison to values determined by a common pedotransfer function and measured soil characteristic curves. Frozen soil complicates the analysis, especially for near surface soils.