



Monitoring and modeling the soil hydraulic behavior in stony soils

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Describing the soil hydrological behavior at applicative scales remains a complex task, mainly because of the spatial heterogeneity of the vadose zone. Addressing the impact of the unsaturated zone heterogeneity involves measuring and/or modeling water content evolution with fine spatial and temporal resolution. The presence of stones introduces difficulties for both the measurement of the water content and the soil hydraulic properties.

In this context, the main objective of this study was to assess the role of stones on TDR-based water content measurements, as well as on the pattern of variability of simulated water contents at field-scale during water infiltration, drainage and evaporation processes. Also, the role of stones was evaluated as one possible explanation of the differences frequently observed between the measured hydraulic behavior and that estimated by using pedotransfer functions.