



Gaining more insight into soil hydraulic characterization and related epistemic uncertainties to better model ecohydrological responses across space-time scales

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Ecohydrological goods and services provided by an ecosystem are precious commodities for humankind and help to support our society, but natural resources like soil, water, and vegetation are also vulnerable and have to be exploited with great care. The analysis of benefits that people may obtain from ecosystems proves rather difficult partly because assessing hydrological response requires comprehensive models, whose use is often hampered by some sources of uncertainty.

This talk would firstly provide a critical account of some laboratory and field experiments used to determine the soil hydraulic properties and assess the structure of their spatial variability. A discussion will follow on how and to what extent this information can be suitably implemented in computer models of different complexity simulating processes in the soil-vegetation-atmosphere system. We also focus on the issue that input uncertainty is due to the variability not only of model parameters (essentially, a spatial variability), but also of boundary conditions (mostly, a temporal variability). This can represent a valuable basis to throw ourselves toward challenging questions, such as the “scale-transfer” and model over-parameterization problems.