



Soil moisture and potential measurements in NW Italy

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The vertical variability of soil moisture in the rootzone is a key factor and it is not taken into account in many hydrological models.

Therefore it is here proposed a novel approach that is based on the inversion of a semianalytical solution of the equation governing the infiltration and the exfiltration processes. The inversion allows keeping the information contained in the vertical spatial variability. It has been monitored with TDR measurements down to 2 meters depth.

Also, the hysteresis and dynamical effects are then taken into account, with water potential measurements, in order to correctly predict the water retention both in infiltration and in drainage/exfiltration transients.

References

M. Baudena, I. Bevilacqua, D. Canone, S. Ferraris, M. Previati, A. Provenzale (2012). Soil water dynamics at a midlatitude test site: Field measurements and box modeling approaches. *JOURNAL OF HYDROLOGY*, vol. 414-415, p. 329-340, ISSN: 0022-1694, doi: 10.1016/j.jhydrol.2011.11.009