



Three-dimensional simulation of complex virtual soil systems

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Virtual soil systems can be a valuable tool to study the importance of measurement error, averaging of measurement devices over space and time, heterogeneity and errors in the effective model in the one-dimensional simulation of water transport in soils.

We present the results of three-dimensional high-resolution simulations of heterogeneous soil blocks at the field scale ($10 \times 10 \times 6.4 \text{ m}^3$). A two-scale internal structure comprising of soil horizons and a sub-scale heterogeneity is considered, as well as wheel tracks and a plough pan. The results of two- and three-dimensional simulations are compared.