



Estimation of near-saturated hydraulic conductivity by minidisk infiltrometers for soils with wide pore-size distribution

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Disk infiltrometers are widely used devices for quick and convenient measurement of soil surface hydraulic properties. In the present study, several estimation procedures, commonly used for the determination of near-saturated hydraulic conductivity from disk infiltration data, are evaluated using numerical modeling of three-dimensional axisymmetric flow below infiltrometer disk. The analysis is performed for a set of soils representing a wide spectrum of textural classes. Special attention is paid to the sandy loam soils typical for the mountain regions of Central Europe (classified as Cambisols). Improved conductivity estimates, specifically for the soils with low value of van Genuchten's parameter n (characterized by wide pore-size distribution), are obtained by extending the semi-empirical estimation procedure of Zhang (1997).