

Hydrologic Response of Undisturbed Soil Column to Various Intensities of Simulated Rainfall

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Abstract

Infiltration experiments of variable intensities (4.1 E-6 to 2.8 E-5 m/s) were conducted on an undisturbed soil column. The preferential and matrix flow were investigated with the kinematic wave theory. This approach was first applied to the drainage curve of outflow. In this case, the preferential flow takes place during intermediate infiltration rates. The hypothesis was then applied to soil moisture at three depths of the column. According to theory, the wetting front is the more dispersed the more it progresses down. Measured drainage of both outflow and soil moisture were reasonably well described by the kinematic wave model.