



Ponded Infiltration Test in Field Using Fluorescent Dye

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In the experimental watershed Uhlirska of the Cerna Nisa river (1.87 km²) the experimental hill slope transect has been instrumented, the massive data collection and soil surveying is in process since spring 1997. In the outlet subsurface trench the shallow subsurface runoff is collected. The water saturation of soil profile along the transect is controlled by 5 sets of automated tensiometers adjacent to the trench.

The location is representative for the studied environment. The typical soil profile is highly heterogeneous, formed by 0.8-1.2 m of Cambisols. The depth of decayed and fractured granite bedrock as determined by the indirect geophysical methods is 4-20 m. Due to the highly permeable topsoil and preferential flow taking place within the whole soil profile, no overland flow occurs.

Two long lasting ponded infiltration experiments with application of a pulse of Rhodamine – G, as a tracer, detected continuously by means of two Turner 10-AU fluorometers equipped with the flow cells, were performed on the hill slope above the trench during vegetation season of 1999. During semi-steady flow of each infiltration experiment, distinct long lasting pulse of Rhodamine – G was added. Both experiments were performed under different initial hydrological conditions and resulted in different hydraulic behavior and spatially heterogeneous non-Darcian distribution of subsurface runoff. Despite that, the shape of solute breakthrough curves for both experiments is similar, indicating portions of the outflow from the watershed (shallow subsurface outflow and deep percolation) as a result of infiltration.

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