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Soil and Water Research

Soil water regime estimated from the soil water storage monitored in time

Š ůor J., Gomboš M., Kutílek M., Krejča M.:

Soil & Water Res., 3 (2008): S139-S146

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During the vegetation season, the water storage in the soil aeration zone is influenced by meteorological phenomena and by the vegetated cover. If the groundwater table is in contact with the soil profile, its contribution to water storage must be considered. This impact can be either monitored directly or the mathematical model of the soil moisture regime can be used to simulate it. We present the results of monitoring soil water content in the aeration zone of the East Slovakian Lowland. The main problem is the evaluation of the soil water storage in seasons and in years in the soil profile. Until now, classification systems of the soil water regime evaluation have been mainly based upon climatological factors and soil morphology where the classification has been realized on the basis of indirect indicators. Here, a new classification system based upon quantified data sets is introduced and applied for the measured data. The system considers the degree of accessibility of soil water to plants, including the excess of soil water related to the duration for those characteristic

periods. The time span is hierarchically arranged to differentiate between the dominant water storage periods and short-term fluctuations. The lowest taxonomic units characterize the vertical fluxes over time periods. The system allows the comparison of soil water regime taxons over several years and under different types of vegetative cover, or due to various types of land use. We monitored soil water content on two localities, one with a deep ground water level, one with a shallow ground water level. The profile with a shallow ground water level keeps a more uniform taxons and subtaxons of soil water regime due to the crop variation than the profile with a deep ground water level.

Keywords:

ecology classification; soil water regime; soil water content monitoring; soil water storage

[[fulltext](#)]

