



## **Periglacial slope deposits and saprolites controlling water discharge – results from a three years measurement on a test site in the Bavarian Forest, Germany**

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In old crystalline basement areas the relief is dominated by periglacial slope deposits and pre-quatarnary saprolites, which are responsible for layer-characteristic soil water movements. To understand and analyse the water flow along the hillslope, the different layers (Upper Head, Middle Head, Lower Head) and the saprolite must be studied separately. Therefore 30 FD sensors (ECH<sub>2</sub>O, Decagon Devices) in different depths, five probes at each of the six measuring fields, were installed along a catena in the Bavarian Forest. The actual location of the FD sensors within the profiles is guided by the stratigraphy of the periglacial slope deposits, such that the variations in volumetric water content in the different stratigraphic units can be monitored during the hydrological year.

The volumetric water content was documented since October 2005, containing two hydrological years completely. The soil-water content variation mostly follows the typical mean changes in precipitation with dry autumns and moist summers. Differences between the two hydrological years arise from the very cold and icy winter of 2005/06, that was followed by several melting events, and a dry summer of 2007.

Important for the study are the differences in the water content of the layers arising from their characteristic sedimentological properties.

In the Upper Head, the soil-water fluctuations indicate the direct influence of precipi-

tation and the fast seepage caused by the permeability of this layer.

Different values at the probes in the Middle Head (permanently low or fluctuating) show the sedimentological inconsistency of this layer.

Constant high values, which do not show the direct influence of precipitation, characterise the Lower Head. In this layer water flow occurs in many cases as interflow.

The constant values with only few amplitudes indicate possible storage of seepage water in the saprolites.

So the measurement readings demonstrate the clear connection between water flow and sediment characteristics as the basis of this research. Additional measurements with tensiometers as well as transfer of this study to other test sites are a possible extension for further developments.