



## **Runoff formation at the hillslope scale – monitoring and modelling**

H. Holzmann

Department for Water Management, Hydrology and Hydraulic Engineering, University for Agricultural Sciences, Vienna (BOKU)

One main objective of hydrological field experiments is the gaining of knowledge regarding the runoff formation processes. Based on these experiences simulation models can be developed, considering impacts of vegetation cover, soil properties and morphological parameters. Both observation data and model results exhibit failures. Observation errors are due to plot design, measurement errors and data misinterpretation. Computational errors are based on unreliable model design, parameterisation or the lack of process representation.

During a past research project the runoff formation at the hillslope scale was observed and compared with model computations. The field observation design included the measurement of near and subsurface runoff, soil moisture and soil suction. Different types of forest vegetation cover were considered.

The model results based on conceptualisation of the runoff components (saturation flow, interflow, base flow) could directly be compared with the observed components of quick (near surface) flow, interflow and slow (base) flow of the experiment. A special emphasis was put on the question, if the model assumptions of nonlinear storage release really meets the observations of the plot scale, or if small scale heterogeneities rather dominate the processes.

The presentation will refer also on the difficulties and limitation at the experimental plot, e.g. the contributing drainage area and the release of deep drainage. Also shortcomings of the model design, which appeared evident during the model validation are presented.