



Baseflow recession analysis at the eastern foothills of the Alps

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The Hidegvíz Valley experimental catchment, located in the Sopron Hills (Hungary) at the Austrian border region. The whole (6 km²) catchment is fully forest covered and a part of the area is nature reserve. Digital measurement techniques and methods are applied in the investigations of hydrologic elements.

One of the goals of this experiment is to explore the effects of forest vegetation (in different tree species and ages) and forest management activities on stream flow regime. The outflow in time is one important indicator of these effect, which is the most common information available from research catchments. The discharge time series is determined by the rainfall, but the falling limb of the hydrograph reflects the drainage of the basin.

The information enclosed in the falling limb can be subtracted with help of the linear storage model. The initial time point of the recession has not an influence on the parameters of the model and can be fit as an exponential curve with the method of linear regression.

We analysed six year long discharge time series of two neighbouring sub-catchments (Farkas Valley and the Vadkan Valley). The average residence time of catchment was determined with the coefficient of the linear storage model. Both catchments basin wide residence time vary seasonally because of transpiration. The mean hydraulic conductivity of the watersheds is estimable with the residence time determined outside of the growing season.