



Vegetation effect on riparian aquifer groundwater level and stream baseflow

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Vegetation has influence on the stream close groundwater level and stream baseflow regime on small catchment scale. Forest vegetation has especially strong effect on these phenomena of hydrology.

The study site is namely Vadkan Valley (0.9 km²), which is one of the sub-catchment of the Hidegvíz Valley experimental catchment. It is located in Sopron Hills at the eastern border of the Alps. Representative rainless periods in the years of 2000–2005 have been chosen from hydro-meteorological data sets for analysis. Some micro-meteorological model (Monin-Obukhov, Svedrup, Thornthwaite-Holzmann, Penman-Monteith) were used to calculate the riparian evapotranspiration (alder [*Alnus glutinosa*] dominated) and results were compared with each other. Evapotranspiration values were determined from riparian zone groundwater level and from stream baseflow diurnal pattern also.

Penman-Monteith model was the best correlated with baseflow pattern, therefore it was used in the further analyses. The size of the riparian contributing area was estimated from the correlation unit area evapotranspiration with catchment scale evapotranspiration. Unit area evapotranspiration value was calculated from meteorological method and groundwater level. Catchment scale evapotranspiration value was determined from baseflow diurnal pattern. Above mentioned estimated areas compared with each other and to geomorphologically determined riparian vegetation area also.