Geophysical Research Abstracts
Vol. 12, EGU2010-12301, 2010
EGU General Assembly 2010


# Harvesting isotopes. Using stable isotope to understand rainfall – runoff processes in an agricultural catchment in Switzerland

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In agricultural catchments, rainfall-runoff processes have big influence on water availability, geomorphology and transport of nutrients and pesticides. A method to gain knowledge of catchments storm flow respond is hydrograph separation using stable isotopes 18O and 2H. This method has been successfully applied in many natural catchments around the world, but the applications in agricultural catchments are limited.
This study presents the hydrograph separation in a small scale agricultural catchment (1 km2) near the village of Ossingen in Switzerland. Summer rainfall events were investigated, spatially and temporally, by making use of hydrograph separation using stable isotopes 18O and 2H in rainfall and discharge. For this purpose, the precipitation amount and its isotopic composition was measured. The discharge was observed at the catchment outlet and in four additional sub catchments. During events the runoff was sampled automatically with a frequency of 15 minutes. Here we present the first results of this study, which show that hydrograph separation improves process understanding also in agricultural catchments.