Geophysical Research Abstracts
Vol. 14, EGU2012-4954, 2012
EGU General Assembly 2012

Impacts of sampling resolution on stable isotope characteristics of precipitation and stream flow in large river basins

P. Koeniger

GEOZENTRUM HANNOVER, BGR Federal Institute for Geosciences and Natural Resources, Hannover, Germany (paul.koeniger@bgr.de, 0511 643 2304)

Isotope hydrological investigations in large scale river basins provide insights into processes (evaporation, transpiration), storage behavior (groundwater recharge, residence times), and catchment characteristics (altitude effect, summer - winter patterns, mixing). Time series of isotopes in precipitation are usually available in monthly resolution and river water is generally monitored extensively only during short periods. In this contribution a report is given on interpretations of stable isotope (deuterium and oxygen-18) hydrological time series from seven sub catchments of the Weser River in Germany (5,410 km^2 to 46,240 km^2, altitudes ranging from 0 to 1,100 m asl). Isotope data is available in monthly resolution from 2003 to 2010 (95 months) and for two stations (Höxter with 15,320 km^2 and Rinteln with 17,260 km^2) additionally samples were collected in weekly resolution during 2010. Precipitation was collected in Hannover on a weekly basis since 2007 and allows a direct comparison with the river water series. A comparison of isotope signals of different time resolutions as well as patterns that are related to precipitation input are discussed and an overall isotope characterization for large catchments will be presented.