Geophysical Research Abstracts
Vol. 18, EGU2016-15979, 2016
EGU General Assembly 2016

Merging of Rhine flow regimes

Berry Boessenkool, Axel Bronstert, and Gerd Bürger

Potsdam University, Inst. f. Earth and Environmental sciences, Hydrology, Potsdam Golm, Germany
(boessenk@uni-potsdam.de)

The Rhine flow regime is changing: (a) in the alpine nival regime, snow melt floods occur earlier in the year and (b) in the pluvial middle-Rhine regime, rainfall induced flood magnitudes rise. The seasonality of each is currently separated in time, but it is conceivable that this may shift due to climate change. If extremes of both flood types coincide, this would create a new type of hydrologic extreme with disastrous consequences. Quantifying the probability for a future overlap of pluvial and nival floods is therefore of high relevance to society and particularly to reinsurance companies.
In order to investigate possible changes in magnitude and timing of flood types, we are developing a chain of physical models for spatio-temporal combination of flood probabilities. As input, we aim to use stochastically downscaled temperature and rainfall extremes from climate model weather projections. Preliminary research shows a six-week forward-shift of peak discharge at the nival gauge Maxau in the past century. The aim of presenting our early-stage work as a poster is to induce an exchange of ideas with fellow scientists in close research disciplines.