



## Clustering of floods in Germany

**B. Merz, J. Stuck**

GeoForschungsZentrum Potsdam, Telegrafenberg, 14473 Potsdam, Germany  
(bmerz@gfz-potsdam.de)

For several regions worldwide, it has been shown that the occurrence and magnitude of floods cluster in time. This contribution analyses the interannual up to the inter-decadal variability of flood magnitude and flood occurrence in Germany. Flood time series (annual maximum series and peak over threshold) of 60 basins, distributed all over Germany, with observation periods longer than 70 years are analysed. Fluctuations in flood magnitude and occurrence are described by filtering methods, correlation analyses and wavelet transformation. It is shown that there is a marked space-time variability in flood frequency and flood occurrence over Germany. Most of these flood variations are correlated with large (European) scale climate variables like mean sea level pressure, 500hPa geopotential and surface temperature. This variability depends on large scale oscillation patterns like the North Atlantic Oscillation (NAO) or rather its global scale circumpolar component, the Arctic Oscillation (AO). For example, the series of floods in West Germany (Rhine, Mosel) in the early 90ies are linked with a strong positive phase of the NAO. Thus, the flood probability in most of these basins is time dependent.