



Linking Drought Impacts to Reported Impacts

Veit Blauhut (1), Kerstin Stahl (1), Lukas Gudmundsson (2), and Sonia Seneviratne (2)

(1) Institute of Hydrology, University of Freiburg, Germany, Freiburg, (2) Institute for Atmospheric and Climate Science, ETH Zurich, Switzerland, Zurich

Drought develops slowly and on a large scale, causing a variety of direct and indirect environmental and socio-economic impacts. It is a recurrent, transboundary phenomenon and can affect vast areas and millions of people. The 2003 drought in Europe, for example, caused over 11 billion Euros of losses from impacts on agriculture, water quality, energy production, and other sectors. For characterizing and monitoring of the natural hazard a number of drought indices are commonly used. However, approaches to link these indices to real, observed drought impacts are still missing. The presented work illustrates a methodological approach for linking common drought indices with reported physical, ecological and socio-economic drought impacts. As an example the Standardized Precipitation Index (SPI), the Standardized Precipitation and Evaporation Index (SPEI) and river flow anomalies will be associated to reported drought impacts in Germany and Switzerland. Impact information is obtained from the European Drought Impact Inventory (EDII) compiled by the EU FP7 Drought R&SPI (Fostering European Drought Research and Science-Policy Interfacing) project. The event best covered by the inventory is so far the drought of 2003, but also impacts from 1976, 1990, and 2011 are reported. The results show distinct differences in the sensitivity of the link between drought impacts and the considered drought index, depending on event, variable and impact type. The ability to model this linkage is key information to elucidate the significance of suitable vulnerability thresholds on these drought indices in different sectors and different regions. It is thus an essential component to appropriate drought risk and vulnerability for Drought Risk Management to foster resilience for this hazard.