



## UFZ-Seminar

Research Unit



## Water Resources and Environment



21 September 2020, 10 a.m.

Room E01A+B, Theodor-Lieser-Straße 4, Halle/Saale  
(online seminar)

### Anna Sikorska-Senoner

University of Zurich, Department of Geography, Switzerland

will give a talk on:

### Accounting for uncertainty in flood triggers with a fuzzy approach

In many places, magnitudes and frequencies of floods are expected to increase due to projected climate change. To understand these changes better, trend analyses of historical data are very helpful. Traditional trend analyses, however, do not address issues related to shifts in the relative contributions of rainfall versus snowmelt floods, or in the frequency of a particular type of a flood (e.g. snowmelt). Moreover, time series for analysis of flood changes and their drivers may be affected by uncertainties, which makes the interpretation of trend analysis results often difficult.

A promising way to deal with these issues is by accounting for uncertainties in the description of flood processes. In this way, real flood events can be more realistically represented and changes in these events can be more reliably assessed. For this purpose, a novel approach that is based on the fuzzy classification of flood events is proposed and tested in Swiss catchments. Results from 27 catchments reveal a decreasing number of rain-on-snow and an increasing number of short rainfall events in all catchments, with flash floods increasing in smaller catchments. Overall, the results demonstrate the value of incorporating a fuzzy flood-type classification (and thus uncertainty) into flood trend analyses.