# Extreme floods and precipitation events in Germany: A long-term perspective

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Extreme floods rank first in the list of damages from natural disasters in Germany. Achieving a quantitative knowledge about past and future flood risk requires data of high quality. These are provided by long-term measurements of relevant variables such as precipitation and runoff. The historically-critically analysis of documentary records of extreme flood events offers to extend the view back by several centuries. In addition, an elaborated statistical analysis technique is essential that has the ability to quantify time-dependent changes in flood risk with error bars. Because precipitation has a high spatial variability, such a flood risk or climate risk analysis has to be carried out at sufficiently high resolution. Rivers are to be analysed separately, and a seasonal resolution (winter versus summer floods) is mandatory to obtain meaningful results. We present a selection of data and analyses from various rivers and basin areas in Germany, including the Elbe, Oder, Main and Werra. We present our risk quantification method (kernel occurrence rate estimation with bootstrap confidence band construction) in appropriate probabilistic terms. We conclude that the data quality is quite acceptable to yield a sustainable growth of knowledge about flood risk in German rivers.