



## **A 500 year climate reconstruction of Southwest Germany based on documentary and direct data with a special focus on high resolute reconstructed extreme rain events**

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Against the background of an increasing world population and the changes that this is causing to the earth, the increasing industrialisation resulting in more emissions of greenhouse gases, it is indispensable to differentiate between natural and anthropogenic climate changes. This applies equally to global as well as regional climates. Due to the fact, that the weather data measurement series in the upper Rhine valley go back a maximum of 150 years, it is not possible to use this data to grasp long term climate fluctuations. For example, the current climate is integrated in long scale climate cycles which last thousands of years. To describe these changes accurately, it is necessary to reconstruct the climate beyond that of instrumental series measurements. With the application of direct and indirect data (proxy data) a climate reconstruction will be attempted for the area of region TriRhena. With the application of documentary data it is possible to reconstruct the climate prior to instrumental measurements. These historical records are made up of, for e.g. weather descriptions, information about the wine harvest and other agricultural products, as well as their price fluctuations. Using this data it is possible to calculate meteorological parameters creating an index of air temperature and precipitation values. Climate is an integration of weather and therefore its worth to set the focus also on single interesting weather events. Especially extreme events can contribute to the thesis “learning from the past for a better future”. Aim of the research is to identify and apply extreme flood events of the past 500 years as a basis for further analysis like a contribution to improve current flood hazard maps. The data which will be presented were extracted from historical records such as local annuals and chronologies from 1500–1900 and supplemented by instrumental observations since 1755.