



Climate reconstruction for the Regio TriRhena (Upper Rhine Valley, Southwest Germany) with direct and indirect data prior to instrumental measurements

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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 using 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 was made for the area of Region TriRhena (Upper Rhine Valley, Southwest Germany). With the application of historical records it is possible to reconstruct the climate before instrumental measurements began. These historical records are made up of, for example weather descriptions, information about the wine harvest and other agricultural products, as well as their price fluctuations. Especially the weather notations have a high chronological resolution. Using this data it is possible to calculate meteorological parameters creating an index of temperature and precipitation values with a high density and with only small inaccuracy. To estimate temperature and precipitation for the period before instrumental measurement, an index is created, which is orientated e.g. on a meteorological normal period. The evaluated data built up a time series for air temperature and precipitation for the last 500 years for the Upper Rhine Valley, Southwest Germany.