



Winter climatic conditions in Andalusia (southern Spain) during the Dalton Minimum from documentary sources.

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In this work, a reconstruction of winter rainfall and temperature in Andalusia (southern Iberia Peninsula) during the period 1750-1850 is presented. The reconstruction is based on the analysis of a wide variety of documentary data. This period is interesting because it is characterized by a minimum in the solar irradiance (Dalton Minimum, around 1800), as well as intense volcanic activity (for instance, the eruption of the Tambora in 1815), when the increasing atmospheric CO₂ concentrations were of minor importance. The reconstruction methodology is based on accounting the number of extreme events in past, and inferring mean value and standard deviation using the assumption of normal distribution for the climate variables. Results are compared with the behaviour of regional series for the reference period 1960-1990. The comparison of the distribution functions corresponding to 1790-1820 and 1960-1990 periods indicates that during the Dalton Minimum the frequency of droughts and warm winters was lesser than during the reference period, while the frequencies of wet and cold winters were similar. Future research work is outlined.