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Precipitation trends in Madeira and Azores Islands over the 20th century

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The study of precipitation temporal and spatial variability is very relevant, mainly because of its impact on society, economic activities (e.g. agriculture), land use and water resources. Insufficient knowledge of regional environmental and hydroclimatic conditions often leads to the misjudgement of a number of important processes; it can have negative consequences to the sustainable management of water and other resources in particularly vulnerable regions (e.g. islands).

The purpose of this work is to contribute to a better understanding of the variability of precipitation in Madeira and Azores Islands (Portugal), by investigating trends in the temporal structure of this process. These islands are located in the Atlantic Ocean. Typically, these islands have a small area and strong orographic amplitude; therefore, the spatial variation of climatic conditions is larger than in most continental regions. The study uses long precipitation records dating from the 19th century. Annual and monthly data are analyzed using statistical methods (e.g. Mann-Kendall trend test). In order to take into account seasonality and serial correlation, the different months of the year were analysed separately.