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Towards a better assessment of the historical climate of Extremadura region (SW Spain)

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Our efforts to a better understanding of the historical climate of the region of Extremadura (interior of the SW Iberia) have been directed in two main aspects. First, we have tried to recover all the meteorological data of the pre-instrumental period. Second, we have been working on the localization and analysis of proxy data, including “pro-pluvia” rogation ceremonies and a chronology of catastrophic floods in this region.

The recovery of historical meteorological data from libraries and archives and the subsequent digitization to obtain readable-machine version has been a main task in our research. Meteorological data from different sources (manuscripts, books, newspapers, etc.) and eight different locations in Extremadura have been recovered and digitized. The oldest data were read in 1824 (Fernández-Fernández et al., 2014). Other important meteorological series can be highlighted as the actinometric measurements in Cáceres for the period 1913-1920 (Bravo-Paredes et al., 2019).

“Pro-pluvia” rogations were celebrated during dry conditions to ask God for rain. In our case, 35 “pro-pluvia” rogations were retrieved for the period 1824-1931 from different locations in Extremadura. The winter climate of this region is strongly dominated by the North Atlantic Oscillation (NAO) and, therefore, these pro-pluvia rogations were associated to the NAO index to analyze this relationship. The results of our analysis show that the rogation ceremonies in Extremadura can be considered a good proxy for the NAO index. Also, it is important to know the magnitude and the impact of the catastrophic floods occurred in Extremadura. In total, 40 floods occurred in Badajoz were recovered from different documentary sources for the period 1545-1989.

All these research efforts will allow for a better understanding of the past climate in the region of Extremadura, where such studies have been very scarce.

References

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