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Assessment of oceanity and continentality conditions of the XX Century in the Iberian Peninsula

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The oceanity and continentality conditions clearly influence the climate of a region. Seeking at understanding these influences on the Iberian Peninsula climate, the spatial distributions of air temperature, precipitation and five climatic indices are analysed in the period between 1901 and 2012 and in three sub-periods (1901-40, 1941-80 and 1981-2012). This study aims at investigating the Xerothermic index of Gaussen and the continental and oceanic characteristics of the Iberian climate by using Conrad-Pollak and Johansson Continentality Indices, as well as Kerner and Marsz Oceanity Indices. Gridded air temperature and precipitation datasets are used on a monthly basis.

Results reveal hyper-oceanic (maritime) characteristics in the northernmost portion of Iberia, continental in the inner region comprising Extremadura, Castile-La Mancha and Andalusia, and maritime characteristics in between. It is worth mentioning that within these regions the maritime (continental) characteristics become weaker (stronger) between 1981 and 2012. Statistically significant linear trends show an increase in both temperature (2-4˚C) and on continental influences in the northwestern and southeastern regions of Iberia for the entire period. Statistically significant correlations are also found between the Johansson Continentality Index and both Conrad-Pollak and Marsz Oceanity Indices at a 95% confidence level, revealing a good agreement of results among these indices.

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