

The Drought Interest Group: Increasing severity and duration of drought in the Iberian Peninsula (1850-2010)

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Dry events have been identified and analysed for the whole Iberian Peninsula since mid-nineteenth century using a specific drought index. Daily adjusted temperature and precipitation data for 22 Spanish series (SDATS and SDAPS) and 2 Portuguese series have been used for this project. Combining climatic series with soil water holding capacity for the Iberian Peninsula the Palmer's Drought Severity Index has been calculated using its Self-Calibrated version (Sc-PDSI) on a monthly basis. The Sc-PDSI depends not only on precipitation, but also on temperature to calculate evapotranspiration. Its Self-Calibrated version allows to extrapolate this index outside its area of definition (USA). Analysis of Sc-PDSI's variability shows the severity of dry events is increasing statistically significant in the Iberian Peninsula during last decades at a rate of 0.061/decade. Under a changing climate this increasing in dry events severity may associate with higher evapotranspiration process mainly due to the observed increase in temperature. Furthermore, analysis of duration of dry events shows a remarkable increase of dry months per event statistically significant as well. The accumulative character of droughts has been identified by noting that when the duration of dry event increases so does the severity in a direct relation of 0.9 (Pearson's coefficient). The obtained results confirm the magnitude of droughts (severity and duration) is worsening significantly in the Iberian Peninsula during last decades, while wet events don't present significantly variations.