

Climate change of precipitation extremes in the Iberian Peninsula: an overview of the CLIFE project

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The main aims of the project 'Climate change of precipitation extreme episodes in the Iberian Peninsula and its forcing mechanisms - CLIFE' are (i) to diagnose the climate change signal in the precipitation extremes over the Iberian Peninsula (IP), and (ii) to identify the underlying physical mechanisms. For the first purpose, a multi-model ensemble of 25 Regional Climate Model (RCM) simulations, from the ENSEMBLES project, is used. These experiments were generated by 15 RCMs, driven by five General Circulation Models (GCMs) under both historic conditions (1961 – 2000) and SRES A1B scenario (2001 – 2100). In this project, daily precipitation and 500mb geopotential height, for the periods 1961 – 1990 (recent past), 2021 – 2050 (recent future) and 2021 – 2100 (distant future), are used. Using extreme statistics of precipitation (ETCCDI indices), climate change is assessed by climatology differences and trends using a non-parametric approach. Climate change

is also assessed by changes in Probability Density Functions (PDFs) estimated at sectors representative of different precipitation regimes determined by a k-means Cluster Analysis of daily precipitation. Lastly, for the second objective of this project, links between precipitation and Circulation Weather Regimes, determined by a k-means Cluster Analysis of daily 500 mb geopotential height, are explored for both past and future climates.

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