



Simulations of Present climate temperature and precipitation episodes for the Iberian Peninsula

M.J. Carvalho (1), P. Melo-Gonçalves (2), and A. Rocha (2)

(1) IDAD The Institute for Environment and Development, Campus Universitario de Santiago 3810-193 Aveiro, Portugal, (2) Department of Physics, CESAM, University of Aveiro, Campus Universitario de Santiago 3810-193 Aveiro, Portugal

The goal of this work is to analyse the occurrence of extreme temperature and precipitation events during the period between 1961 and 2000 in the Iberian Peninsula (IP). For that, the ENSEMBLES Project data, which is composed of several Regional Models driven by Atmosphere-Ocean Global Climate Models and ERA40 Reanalysis was used. Firstly, the models' performance was evaluated using Taylor diagrams, based on observed data provided by the same project. The trend of the number of days in which the maximum/minimum temperature is larger/lower than the 90th/10th percentile of maximum/minimum temperature for the 1961-200 period was determined. It was found that there is a general increase in the hotter days and a decrease in colder nights (although with low statistical significance). The same method was applied for the 90th percentile of total daily precipitation. This was found to have a decrease during the summer and winter months and a less significant increase during spring and fall. Overall, there is a decrease of precipitation in the IP. Indices of daily temperature and precipitation extremes were used in order to isolate areas where significant changes have occurred. These areas were then studied in detail using Probability Distribution Functions (PDF), as well as indices from CCI/CLIVAR/JCOMM Expert Team on Climate Change Detection and Indices. Furthermore, the study of episodes of maximum/minimum temperature and precipitation was conducted taking into account all possible combinations of duration and intensity.