



Climate change impact on precipitation over Portugal: ENSEMBLES RCM simulations

Pedro M.M. Soares (1), Rita M. Cardoso (1), Pedro M.A. Miranda (1), and João J. Ferreira (2)

(1) Instituto Dom Luiz, University of Lisbon, Lisbon, Portugal (pmssoares@fc.ul.pt), (2) Instituto Português do Mar e Atmosfera, Lisbon, Portugal

A new dataset of daily gridded observations of precipitation, computed from over 400 stations in Portugal, was used to assess the performance of 12 regional climate models at 25 km resolution, from the ENSEMBLES set, all forced by ERA-40 boundary conditions, for the 1961-2000 period. As a whole, the ENSEMBLES models are found to achieve a good representation of those features, with good spatial correlations with observations. There is a small but relevant negative bias in precipitation, especially in the driest months, leading to systematic errors in some indices. The same type of evaluation was carried out, comparing the statistical performance of the RCMs control results, revealing the good quality of RCMs for the description of present climate.

The future simulation results for the scenario A1B (2061-2100) were compared with the control results, addressing the changes in mean and extreme precipitation, and its temporal and spatial variability. This assessment shows a clear decrease in mean precipitation over southern Portugal.