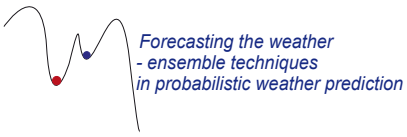
EMS Annual Meeting Abstracts
Vol. 8, EMS2011-832, 2011
11th EMS / 10th ECAM



Regional Climate Models Performance representing the Precipitation over Portugal

P.M.M. Soares (1), R.M. Cardoso (1), J. de Medeiros (1), P.M.A. Miranda (1), and M. Belo-Pereira (2)
(1) IDL/CGUL University of Lisbon, Lisbon, Portugal, (2) Instituto de Meteorologia, Lisbon, Portugal

The precipitation regime in Portugal is highly heterogenic and presents a large temporal variability. These are related to topography, coast irregularity and large-scale frontal systems arriving from the Atlantic Ocean. Regional Climate Modelling is an increasingly used methodology to assess the impact of climate change at regional and local scales. In the framework of the European project ENSEMBLES state-of-the-art RCMs were used to study the climate impact of global warming in Europe. The RCMs ability to reproduce the present climate was evaluated in the European context and in particular for specific regions like Spain, but no evaluation was performed for Portugal. In this study precipitation results of ENSEMBLES climate simulations are presented and evaluated against a new daily precipitation gridded dataset. This latter covers the period from 1950 to 2003, is based on a dense network of rain gauges, about 400, with a high resolution of 0.2ºx0.2º and extends over mainland Portugal. The simulations correspond to a dynamical downscaling of ERA-40, to the period of 1961-2000, performed with 25km horizontal resolution. An in-depth comparison between ENSEMBLES models results and observations is offered, with especially emphasis on the spatial precipitation pattern, in different time scales, and to temporal variability and extreme events. The best models results show a good agreement in what concerns the annual and seasonal means, but a large misrepresentation of the rainfall frequency and extremes.