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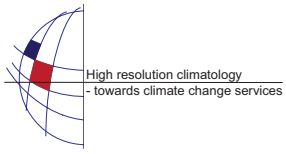

Assessment of precipitation in the Iberian Peninsula: WRF regional climate simulations

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The precipitation distribution in the Iberian Peninsula has a high spatial variability, with a high North-south disparity, as well as large inter and intra-annual fluctuations. In recent years the development of Regional Climate models with increasing complexity in cloud and precipitation subgrid-scale parameterisations allow for a more accurate assessment of precipitation on large temporal time scales.
The WRF-ARW model, version 3.1.1, was used for simulations of precipitation over the Iberian Peninsula. A high regional resolution is achieved by using two nests centred on the Iberian Peninsula with 27km and 9km resolution and two-way nesting. In order to ascertain which of the microphysics and cumulus schemes were more suitable for climate simulations, seven microphysics and two cumulus parameterisations were used to simulate the 2007 climate. These results were compared with hourly observations from 235 INAG (Portuguese water management authority) stations and 18 Spanish stations from the European Climate Assessment and Dataset (ECA&D). The chosen parametrisations were, then used to simulate the drought year of 2005, which was the most extensive and more intense drought of the past 60 years, and the wet year of 2000 which was the wettest year of the last decade.