



Modelling of orographic precipitation over Portugal and effects on the surrounding regions

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The northern and central regions of Portugal can be distinguished from the South by their higher altitudes and steep terrain relief. The South of Continental Portugal presents lower altitudes, predominantly with flat relief, except for a few exceptions of mountain ranges reaching up to 1000 m. The annual precipitation distribution over the country is unequal as well, being more abundant on northern and central regions partially due to orographic precipitation. In the South of Portugal, precipitation is usually scarcer, with a few exceptions observed over the mountainous regions.

In the present work, a mesoscale nonhydrostatic atmospheric model (MesoNH) is used to study the orographic precipitation during May and June 2002 over the mountain ranges of Continental Portugal. In order to access the effects of the mountains, case studies simulations are done, with and without real orography. MesoNH is here initiated and forced by the ECMWF analyses. The effects of orography on precipitation of neighbouring regions is also analysed, especially in the southern regions, where its occurrence is irregular and the interior regions sometimes undergo periods of drought that may last more than one consecutive year.

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