



## **RAMSHES Project: A five-hundred-year high-resolution regional climate run over the Iberian Peninsula**

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One of the main problems for assessing regional climate is the low spatial resolution of General Circulations Models (GCMs). In order to solve this problem downscaling techniques are commonly used.

One of the most used approaches to dynamical downscaling consist in running a limited area model nested in a GCM. That is, the use of GCM output as initial and boundary conditions for a higher resolution dynamical model which is, in principle, aware of regional features unresolved by GCMs.

In this work we present a 490-year (1501-1990) simulation performed with the MM5 mesoscale model, modified for climatic time-scale integrations. The regional model has been driven by a multicentennial simulations produced with the state-of-the-art Atmosphere Ocean GCM ECHO-G.

A two way nesting configuration has been used, the inner domain covering the whole Iberian Peninsula with a spatial resolution of 45 Km. The regional model required further modifications in order to incorporate external forcing in a similar way as the ECHO-G GCM, with a variable solar, volcanic and greenhouse forcing and equal calendar dates specifications.

The main temperature and precipitation patterns for the Iberian Peninsula are studied for the full period and, also, focusing on regional response during special periods such as the Maunder and Dalton minima.