



A high resolution regional paleoclimate experiment over the Iberian Peninsula

J.J. Gomez-Navarro (1), J.P. Montavez (1), S. Jerez (1), P. Jimenez-Guerrero (1), J.A. Garcia-Valero (1,2), and J.F. Gonzalez-Rouco (3)

(1) Universidad de Murcia, Physics, Murcia, Spain (montavez@um.es), (2) AEMET, Murcia, Spain, (3) Universidad Complutense de Madrid, Madrid, Spain

During the last years the use of paleoclimate simulations with models of different complexity has become an usual tool in paleoclimate studies. Progress in understanding climate variability leans on simulation and reconstruction efforts. Exercises blending both approaches present a great potential for answering questions relevant for both the simulation and reconstruction of past climate, and depend on the specific peculiarities of proxies and methods involved in climate reconstructions, as well as on the realism and limitations of model simulations.

Most of paleoclimate integrations available in the literature covering the last millennium have been performed with relative rough resolution which does not allow to analyze regional climate features that can be of interest in the context of proxies evidence.

In this work we present a new high resolution (30 km) regional climate simulation over the Iberian Peninsula of the last five centuries and two extensions to the future for the A2 and B2 SRES scenarios. The regional simulations were performed with a climate version of the MM5 model coupled to the Noah LSM. The driving conditions used follow the Erik1 experiment, performed with the ECHO-G global circulation model.

The results indicate that the seasonal modes of variation for near surface air temperature and precipitation obtained within the regional paleoclimate experiment are consistent with the obtained using the observational databases and equivalent to regional climate integrations driven by reanalysis data. On the other hand, the main modes of variation show strong signals in historical periods such as the Maunder and Dalton Minimum.

Finally, some preliminary comparisons between the global and the regional model against tree ring temperature reconstructions are also reported in this contribution.