



Climate change projections over the Iberian Peninsula: Comparing uncertainties of multimodel, multiscenario and multiphysics ensembles.

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In this work we present two ensembles of climate change projections over the Iberian Peninsula performed with a climate version of the MM5 regional model. The physics ensemble consists of 8 members coming from the change of Cumulus, Planetary Boundary Layer and Microphysics parametrization schemes under the A2 SRES scenario. The other ensemble is formed by 7 experiments using the same physical configuration of the RCM but changing the driving conditions. This change consists of 3 different GCMs under different scenarios.

Additionally we use outputs from the ESCENA project multimodel ensemble in order to estimate the uncertainty in a multimodel ensemble formed by experiments performed with four different regional climate models (WRF, MM5, REMO and PROMES) under two forcing scenarios.

The results show that the uncertainty in regional climate projections derived from the physics ensemble is of the same order of magnitude as the uncertainty introduced by changing the driving conditions and model. The spatial patterns of change strongly depend on the driving model and are less influenced by changing the scenario. It is also important to note the diversity of behaviors when changing the variable and season analyzed. On the other hand the large variety of regional climate projections obtained permits us to identify some consistent signals of change across all experiments, giving some confidence on the future regional climate change projections.