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Detection and attribution of climate change in the Iberian Peninsula by using regional climate models.

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The most important anthropogenic influences on climate are the emission of green house gases (GHG) and changes in land use. Both tend to increase the daily mean surface temperature, and usually it is very dificult to separate these two influences on mean temperature observed trends.

Several temperature data sets over the Iberian Peninsula and a set of regional climate simulations are analyzed. The regional climate simulations have been performed using a regional climate model version o f MM5 driven by the ERA40 reanalysis and simulations with the ECHO-G atmosphere-ocean general circulation model. The model experiments permit us to play with some of the forcing factors and therefore to understand some of the causation of the observed changes.

Although the correlation between the different members of the data sets is very high, each data set show different magnitude and pattern of the trends. However a PCA analysis performed is able to extract the common behavior of all temperature series, showing a common structure of variation which allow us to simplify the exercise of attributing causes.