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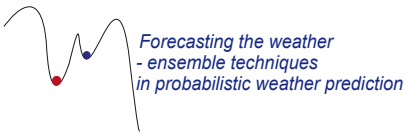

Uncertainties in regional models and observations.

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Regional climate models are affected by several sources of uncertainties, such as physics configuration, resolution, domains size and position, dynamical core, etc. On the other hand the skill of the regional models is usually performed by comparison with gridded observational data sets such as the E-OBS, CRU data, SPAIN02, etc. However the gridded observational data are an approach to the reality. The interpolation method, the number of stations and the quality of the data used can strongly affect the constructed observational gridded data base.

In this work we present and analysis of the differences between three daily high resolution (around 25 km) data sets (E-OBS, SPAIN02 and AEMET) over Spain. The variables analyzed were temperature maximun, minimun and precipitation. The obtained spreads reach values in some regions over 3K for both maximun and minimun temperature. Additionally, differences of the mean precipitation reach values above the 20% in some seasons of the year. The differences are still larger when studying extreme events.

On the other hand, the spreads in two ensembles of regional model simulations driven by reanalysis data have been studied. The first ensemble is a multi-physics ensemble (30km resolution) of eight members. The second one is the ESCENA multimodel ensemble of 5 members (25 km resolution). The main results indicate that the spreads in the ensembles are quite similar and of the same magnitude found in the observational gridded data sets.

These obtained results empathize the strong need of elaborating observational data set of higher quality and make us wonder about the confidence we can have in previous studies evaluating the skill of regional climate models.