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Evaluation of historical climate simulations from a global earth system model downscaled over the EURO-CORDEX domain

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In order to investigate present day climate at a global and regional scale, so-called "historical" climate simulations are performed in the frame of the coordinated CMIP5/CORDEX activity. They are driven by observed anthropogenic forcings like greenhouse gas emissions, aerosols and land use. As these runs serve as a basis for climate change analysis, it is important to evaluate their representation of mean climate and climate variability. In this study the performance of the GCM-RCM modelling chain is investigated for the historical period (1950-2005) over the European domain for the case of the MPI-ESM global earth system model and the REMO regional model.

Global climate information from MPI-ESM is downscaled over the EURO-CORDEX domain at 0.44° and 0.11° resolution for the historical time period using REMO. The results of the 0.44° resolution runs are compared to gridded observational datasets for different climate types in Europe. The 0.11° simulation results are compared for Germany using high resolution observational data. These data are used to investigate the resolution dependency of meteorological quantities such as temperature, precipitation and surface fluxes. First results are presented.