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Reliability Ensemble Averaging (REA) of the European regional climate change

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The Reliability Ensemble Averaging (REA) method calculates average, uncertainty range and a measure of reliability of simulated regional climate changes from ensembles of different model simulations. The REA method is applied to mean seasonal temperature and precipitation changes in three different European spatial regimes in the period 2041-2060 and 2081-2100 relative to the reference period 1995-2014. Regional ensemble results of 55 scenario simulations for the RCP8.5 and RCP2.6 at 0.11 degree resolution over the common EURO-CORDEX domain, using 8 GCMs and 11 RCMs, are compared with the driving CMIP5 global models. For each region we show the median and the 25th-75th and 5th-95th percentile spreads of the weighted temperature and precipitation change. The spread of the changes (both 25th-75th and 5th-95th percentiles) are strongly reduced by the weightening as expected, while the best estimate changes (median) of the projection ranges varies according to the region and the season. The method is also applied to evaluate the reliability of the extreme precipitation simulations.