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Validation of high-resolution precipitation fields as simulated by the regional climate model REMO

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Several climate simulations (validation, control and scenario runs) with the regional model REMO for Germany and parts of the surrounding area, including the European Alps, were performed at a horizontal resolution of 0.088° (˜ 10km). The validation run has been carried out from 1979 until 2006, forced by ERA-15 and ECMWF analysis data at the lateral boundaries. Focusing on the Rhine catchment the comparison of monthly mean precipitation shows a good agreement between data from a dense station network and model output except for the Moselle sub-catchment and for high-altitude Alpine areas.

Looking at seasonal precipitation data for the entire German area the model generally shows good agreement with a slight underestimation in autumn compared to station data. The accuracy of the simulated precipitation clearly depends on the altitude. In mountainous regions the model underestimates the precipitation rates. This phenomenon is very clearly seen in the summer season. The area mean values for Germany are well reproduced.