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Evaluation of regional climate model performances in reproducing observed heat wave characteristics for Germany

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The influence of increased model resolution and tailored settings on the reproduction of heat waves is addressed. Therefore, different regional climate model outputs for Germany and the near surroundings between 1980–2009 were evaluated. This included outputs of a six-member EURO-CORDEX ensemble with 12.5 km resolution and outputs from a high resolution (5 km) WRF run, which was especially tailored for the study region regarding the physics configuration. Despite the same forcing, the models exhibited a large spread. Heat wave frequency and duration were captured relatively well, which was not true for the intensity. All models underestimated the spatial extent of the observed increasing trends. WRF mostly did not perform significantly better than the other models. It is concluded that increased model resolution does not add any value to heat wave simulation if the base resolution is already relatively high. Tailored model settings also seemed to play a minor role.

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