High-resolution climate change simulations within EURO-CORDEX: Projected changes in the RCP2.6 scenario simulations in comparison to RCP4.5 and RCP8.5 scenario simulations

Claas Teichmann (1,2), Arne Kriegsmann (2), Bastian Eggert (2), Andreas Haensler (2), Nils Hempelmann (2), Lennart Marien (2), Juliane Petersen (1,2), Susanne Pfeifer (2), Swantje Preuschmann (2), Diana Rechid (1,2), Kevin Sieck (1,2), Daniela Jacob (2,1)

(1) Max-Planck-Institut für Meteorologie, The Atmosphere in the Earth System, Hamburg, Germany (claas.teichmann@zmaw.de), (2) Climate Service Center, Helmholtz-Zentrum Geesthacht, Hamburg, Germany

Within the EURO-CORDEX initiative a first set of downscaled climate change projections at a horizontal resolution of 12.5 km has been completed for the new emission scenarios. Up to now the majority of the simulations follow the emission pathways of the RCP4.5 and RCP8.5 scenarios and only a smaller number of simulations downscaling the RCP2.6 scenario exists. Also, the analysis in so far published papers on the projections of the EURO-CORDEX ensemble is focused on the higher emission scenarios. However, for policy makers it is of special importance to identify the magnitude of future climate change that would already occur under a low emission scenario like the RCP2.6 scenario.

In this study, we therefore want to present the results of the new high resolution climate change projections for European impact research within the WCRP EURO-CORDEX initiative with focus on RCP2.6 simulations. We will compare the results of the RCP2.6 simulations with respect to the other two scenarios. Our analysis will highlight the differences in large scale patterns of projected changes in temperature and precipitation as well as the statistical distribution of projected changes for selected regions in Europe. Also projected changes in climate indices and extremes of the RCP2.6 projections will be compared to the other two RCPs.