



## **Climate change in Europe at global mean temperature increases of 1.5 and 2°C above pre-industrial conditions according to EURO-CORDEX RCM simulations**

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We present results from an 18-member ensemble of EURO-CORDEX high-resolution regional climate model (RCM) simulations at 12.5 km horizontal resolution covering Europe. The ensemble consists of a range of RCMs that have been used for downscaling different GCMs under different forcing scenarios. The results indicate considerable near-surface warming already at the lower 1.5°C warming exceeding that of the global mean in most parts of Europe. Projected changes are strongest in northernmost parts of Europe in winter and in southernmost parts of Europe together with parts of Scandinavia in summer. Changes in precipitation are less robust than the ones in temperature and include increases in the north and decreases in the south. The borderline between increase and decrease migrates from a northerly position in summer to a southerly one in winter. Changes in near-surface wind speed are associated with a large spread between individual ensemble members at both warming levels. Relatively large areas over the North Atlantic and some parts of the continent shows decreasing wind speed while some ocean areas in the far north show increasing wind speed in most simulations. Some changes are seen already at 1.5°C warming but they are more pronounced and more robust within the ensemble at 2°C. The changes in temperature, precipitation and wind speed are shown to be modified by changes in mean sea level pressure indicating a strong relationship with the large-scale circulation and its internal variability. By comparing to a larger ensemble of CMIP5 GCMs we find that the RCMs can alter the results leading either to attenuation or amplification of the climate change signal in the underlying GCMs. We find that the RCMs tend to produce less warming and more precipitation (or less drying) in many areas in both winter and summer.