



## **Analysing the climatic extremes of future projections for the MedCORDEX domain using RCP4.5 and RCP8.5 scenario**

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In this study HadGEM2 global climate model outputs were downscaled with RegCM4.3 for the entire MED-44 CORDEX area for the period 1950–2099 using RCP4.5 and RCP8.5 scenario. The 50-km resolution RegCM-outputs served as input for further downscaling using 10 km as a horizontal resolution for a smaller domain covering Central Europe with special focus on the Carpathian Region.

RCP4.5 is a stabilization scenario while RCP8.5 is a rising radiative forcing pathway, therefore, the difference in the simulation outputs helps to quantify the inertia of the climate system, the importance of anthropogenic influence on climate, and shows the evidence for the need of mitigation and adaptation measures. Evidently, higher temperature change corresponds to RCP8.5 compared to RCP4.5. The difference of global and/or regional warming between the two scenario can reach (or even exceed) 2 °C from the second part of the century. Differences in precipitation projections are less straightforward to explain as no direct link exists with warming and radiative forcing, however, the annual distribution of precipitation is projected to change, which may lead to important consequences on society.

Our analysis compares the estimated temperature and precipitation changes with special focus on extreme climatic conditions for the following 10 subregions of the MED-44 CORDEX area: Iberian Peninsula, Apennine Peninsula, Balkan Region, Asia Minor, East European Plain, Middle European Plain, Carpathian Basin, Carpathian Mountains, Alps, Western Europe.