



Evaluation of EURO-CORDEX and Med-CORDEX regional climate model ensembles over the Carpathian Basin using the high resolution gridded observational database: CARPATCLIM

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In the framework of the international initiation called the COordinated Regional Downscaling Experiment (CORDEX) several regional climate model (RCM) experiments have been accomplished over different sub-regions of the globe. EURO-CORDEX and Med-CORDEX initiatives provide RCM ensembles targeting Europe at grid resolutions of 50 km (medium resolution) and of 12 km (high resolution). Here a standard evaluation of the ERA-Interim driven EURO-CORDEX and Med-CORDEX RCM ensemble is presented at both resolutions (medium and high). The study represents the performance of the members of RCM ensembles in representing the basic spatiotemporal patterns of the Carpathian Basin climate for the period 1989–2008. In total 9 RCM simulations were evaluated over the Carpathian Basin against the high resolution gridded observational database: CARPATCLIM, focusing on near-surface air temperature (mean, maximum, minimum) and precipitation. The CARPATCLIM database provides daily near-surface temperature (mean, maximum, minimum) and precipitation data encompassing the Carpathian region at $0.1^\circ \times 0.1^\circ$ grid resolution for the period 1961–2010, thus ideal for validation studies over the Carpathian Basin. Different performance metrics computed encompassing different time scales: from daily to monthly and seasonal mean values are used to assess model performance over the region of interest. The preliminary analysis confirms the ability of RCMs to capture the basic features of the climate at regional scales as of the Carpathian Basin. This work is in favor to select RCMs with best performance over the Carpathian Basin on which the future high-resolution climatic database can be established for risk assessment and impact studies for this regional European domain.