



Ensemble numerical simulations with a regional climate model of two extreme precipitation episodes over Romania

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In the 10 day range-forecast we analyze the performance of a regional climate model (RegCM3) in simulating extreme precipitation over Romania. In this study we compare the results of an ensemble of six simulations performed with the RegCM3 model and of the coupling ECMWF global model against observed data for two extreme heavy precipitation episodes recorded over Romania during July and September 2005. The ensemble of six simulations with different perturbations in physical parameterizations, initial conditions and lateral boundary specification is analyzed for each case in relation with the imposed perturbation. The physical mechanisms linked to the extreme events are first analyzed using a range of available observed data (station, remote sound and satellite, and large-scale). Then, the imposed perturbations are specified in order to assess the regional model performance response in reproducing the physical context, initiation and evolution of precipitation events.