

The skill of the regional climatic model RegCM in simulating the precipitation variability in Romania

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In this paper we analyze the performance of the regional climatic model RegCM in simulating the precipitation variability for spring, summer and autumn in Romania and the large-scale atmospheric variability in the Atlantic-European region. For this we used the simulations made with the regional climatic model RegCM and the general circulation model HadAM3H for the base period 1961-1990 and seasonal precipitation totals for 60 stations in Romania. In order to analyze the modeled and observed data sets we used the Empirical Orthogonal Function Analysis (EOF) and Canonical Correlation Analysis (CCA).

The RegCM model is much more skilfull than the HadAM3H model in simulating the precipitation variability over Romania and the large-scale circulation variability over the Atlantic-European region. Both models tend to overestimate the long term mean for spring and autumn precipitaton totals and to underestimated it for the summer season. Regarding the spatial varability of precipitation, the RegCM model is much more skilful in simulating the spatial variability for all three seasons, but both models overestimate the configuration of the first EOF pattern and underestimate the configuration of the second EOF pattern for spring and summer. For autumn both models underestimate the explained variance of the first EOF pattern.

The large-scale circulation variability is well simulated by the regional model RegCM for spring and autumn season. For summer both models tend to underestimate the explained variance of first EOF pattern and to overestimate the explained variance of the second EOF pattern.