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# Variability of air temperature in simulations of regional climate model ALADIN-Climate/CZ and driving model ARPEGE over Europe and dependence on the size of integration domain

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Nowadays regional climate models (RCMs) are increasingly used for downscaling of information from the coarse resolution global climate models (GCMs) and they represent a more and more popular tool for assessment of future climate changes and their impacts at regional scales. In spite of continual progress of climate models, their outputs still suffer from many uncertainties and biases. Therefore, it is necessary to assess their ability to simulate observed climate characteristics and uncertainties in their outputs before they are applied in subsequent studies. Since model errors depend on many factors, complex analyses of model outputs are important. Not only climatological means should be focused on but also other aspects should be assessed. Spatial and temporal variability of meteorological variables is often more important than their means in many sectors.
In present contribution, the climate model's ability to represent spatiotemporal variability of near surface air temperature is assessed. We focused on changes in interannual variability of seasonal mean temperature in period of 1961-2010 with distinguishing between intrinsic and trend-induced variability and differences in simulated and observed variability are assessed. The analysis is performed for several geographical areas located in different parts of Europe with diverse climate characteristics. Observations are represented by E-OBS version 10.0. Two simulations of RCM ALADIN/Climate-CZ in 25-km horizontal resolution with different size of integration domain and driving GCM ARPEGE are studied. Dependence on the size of the integration domain and the improvement of the nested RCM against the driving GCM are analyzed.