



Temperature and Precipitation Changes in the Czech Republic According to Regional Climate Models

Z. Chladova (1,2), J. Miksovsky (2), A. Raidl (2), P. Pisoft (2)

(1) Institute of Atmospheric Physics, Academy of Sciences of the Czech republic, Prague

(2) Department of Meteorology and Environment Protection Faculty of Mathematics and Physics of Charles University, Prague

Mean annual courses of daily mean temperature and precipitation for 48 grid points of the regional climate models HIRHAM and RCAO and 29 meteorological stations of the Czech Republic were compared in the period 1961-1990. The meteorological stations were divided into 5 geographical regions - each represented by several stations and grid points. Additionally, mean annual courses of mean daily temperature and precipitation in the period 2071-2100 were analyzed at selected HIRHAM and RCAO grid points for A2 and B2 scenarios. The results show that model temperatures are overestimated, mostly in winter months, and annual mean course of precipitation is dramatically flattened. Generally, the models simulate the temperature better than the precipitation, due to the effects of model topography and inaccurate modeling of convective precipitation events. Both models showed an all round year increase of mean daily temperatures in the period 2071-2100 compared to 1961-1990. This increase was most pronounced in August, July, September and January. Concerning precipitation, both models showed increase in February, March, December and October and decrease in August. Dependence on the scenario was not significant for precipitation.

Furthermore, average mutual information (AMI) was analyzed. AMI has been calculated for one selected time series of each grid point with a time lag varying from 1 to 10 days.