



Climate changes over Central Europe for 2050 based on a dynamical downscaling with the interactive GEM-AC model

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In the frame of the “Air quality in the future climate in Central Europe” project the GEM-AC climate model with interactive chemistry was used as a computational tool. The methodology consistent with latest IPCC 5th Assessment Report (2013) was applied. Current climate simulation covered the period 2000-2010. Future climate simulations were done for a 10 year time slice centered at 2050. For future emissions we rely on emission information derived using the Representative Concentration Pathways scenario 8.5.

Differences in air pollutants concentration patterns were interpreted in the meteorological context. For the temperature in the future climate during summer period a systematic decrease was predicted over Central Europe extending from the Balkan Mountains to Estonia (1-1.5oC), while in the spring the temperature over the same area will rise by ~2oC. The predicted change of precipitation intensity and distribution was attributed to changes in the circulation patterns over Europe and changes in the intensity of evaporation from Atlantic Ocean and the Mediterranean Sea. In general, total precipitation in future climate is reduced as compared to current climate patterns in model simulations. However, in southern and south-eastern Europe there are regions where precipitation will increase.

We will present changes in regional climate features for Central Europe in terms of temperature, precipitation, total radiation flux, wind, cloud cover and sea level pressure.