



High Resolution Simulations of Climate Change and Air Quality Interaction in Urban Areas

Tomas Halenka, Peter Huszar, and Michal Belda

Charles University in Prague, Fac. of Math. & Physics, Dept. of Meteorology and Environment Protection, Prague, Czech Republic (halenka@mbox.troja.mff.cuni.cz)

Recently the effects of climate change on air-quality and vice-versa are studied quite extensively. In fact, even at regional and local scale especially the impact of climate change on the atmospheric composition and photochemical smog formation conditions can be significant when expecting e.g. more frequent appearance of heat waves etc. For the purpose of qualifying and quantifying the magnitude of such effects and to study the potential of climate forcing due to atmospheric chemistry/aerosols on regional scale, chemistry-transport model CAMx was coupled to RegCM for decadal simulations within project CECILIA. Off-line one way coupling is used now for MEGAPOLI project studies, high resolution of 10 km providing the potential to study the effects of urban areas. High resolution emission data by TNO is used and compared against the EMEP data used before, the sensitivity to the resolution being analyzed. Preliminary results of two-way interactive coupling will be presented as well with evaluation of changes implied. Impact of the big cities or urban areas will be discussed using the simulations.