



Distribution of PM10 concentrations over Southern Poland in winter period - observations and GEM-AQ model results

Paweł Regulski (1), Joanna Struzewska (1), Jacek W. Kaminski (2), and Karol Szymankiewicz (1)

(1) Warsaw University of Technology, Department of Environmental Engineering, Warsaw, Poland (pawel.regulski@is.pw.edu.pl, fax: +48 22 625 43 05), (2) Atmospheric Modelling and Data Assimilation Laboratory, Centre for Research in Earth and Space Science, York University, Toronto, Canada

We will present observations and results from GEM/LAM-AQ simulations that describe distribution and variability of PM10 concentrations over Southern Poland in winter months.

PM10 pollution is considered as a major air quality problem in Poland. Southern part of the country is treated as a significant source region of particulate matter also for neighbour countries.

The analysis of measurements from air quality monitoring stations show an increase of PM10 concentrations in winter months. This effect is caused mainly by frequent near-surface temperature inversions and calm wind periods which enhance a rapid accumulation of smoke from domestic heating sources.

Since November 2010 a high resolution semi-operational air quality forecast for Southern Poland is calculated as a part of the EcoForecast.eu system. PM10 and PM2.5 concentration fields are presented at www.ecoforecast.eu. The aim of this work is to compare predicted and observed distribution of particulate matter and to interpret modelling results in the meteorological context. The analysis will provide better information on the location of emission source regions. Systematic discrepancies between the model and observations in selected locations might indicate the need for revisions of emission inventories.

In addition AOT (Aerosol Optical Thickness) from MODIS will be compared with the modelling results. For the low-wind days an outcome from such analysis might be useful for the adjustment of high resolution emission data.