Geophysical Research Abstracts
Vol. 14, EGU2012-6511-1, 2012
EGU General Assembly 2012

Interannual variability of measured and modelled tropospheric NO_2 column over Central Europe.

K. Szymankiewicz (1), J. W. Kaminski (2), and J. Struzewska (1)

(1) Warsaw University of Technology, Environmental Engineering, Poland (karol_szymankiewicz@is.pw.edu.pl), (2) Centre for Research in Earth and Space Science, Atmospheric Modelling and Data Assimilation Laboratory, York University, 4700 Keele Street, Toronto, Ontario M3J 1P3, Canada.

A 3 year (2008-2010) model simulation was undertaken to assess the climatology and the interannual variability of air pollutants over Central Europe. The GEM-AQ model was used as a computational tool. The model was set up on a global variable grid with a core part covering Central Europe with a resolution of $\sim$15 km. The simulation was performed as a set of 12 hour forecasts with the timestep of 420 s. Emissions were based on available EMEP inventory. The emission inventory over Poland was updated with information from national sources.

Based on hourly results, the NO_2 tropospheric column was calculated as a monthly mean. For each month a 3-year average, and the anomalies with respect to this field were calculated. The analysis of NO_2 columns and their anomalies was undertaken to:
• Identify variability trend in selected locations
• Identify hot spots
• Identify regions with the largest year-to-year differences
The differences will be analysed with respect to dominant meteorological conditions.

The NO_2 tropospheric column calculated from GEM-AQ simulations will be compared with the data derived from SCIAMACHY observations. The reliability of the emission data will be assessed based on the magnitude of the discrepancies in subsequent years. Also, the evaluation will allow for identification of regions with systematic over- and underestimation of the modelled NO_2 column.