Geophysical Research Abstracts
Vol. 15, EGU2013-3537, 2013
EGU General Assembly 2013


# Background $SO_2$ column over selected regions in Europe based on satellite data (OMI, SCIAMCHY) and GEM-AQ results.

Karol Szymankiewicz (1), Joanna Struzewska (1), Jacek W. Kaminski (2,3)

(1) Warsaw University of Technology, Environmental Engineering, Poland (karol_szymankiewicz@is.pw.edu.pl), (2) Centre for Research in Earth and Space Science, York University, Toronto, Canada., (3) EcoForecast Foundation, Warsaw, Poland.

Results from an operational air quality forecast for Central Europe and comparison with selected satellite observations will be presented in this study.

A 3 year (2008-2010) model simulation was undertaken with the purpose 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. Emissions were based on the available EMEP data.
Based on hourly results the $SO_2$ tropospheric column was calculated as a monthly mean for region in spatial range 35N-70N latitude, 10 - 40E longitude. Visualization of 3 year data gave a possibility to analysis results in terms of anomalies. In this study we will determine:
• Variability and trend in selected locations
• Pollution hot spots
• Regions with largest year-to-year differences

The differences will be analyzed with respect to the dominant meteorological conditions and natural phenomena (i.e. $SO_2$ from volcanic injections).

The $SO_2$ tropospheric column calculated from GEM-AQ simulations will be compared with the data derived from SCIAMACHY and OMI observations. On basis of differences between satellite and model data regions with high over and underestimation will be identified for further analysis , i.e. investigation of emissions fluxes.