



Impact of emission data on chemical weather forecast during iAREA project pre-campaign at Svalbard in March 2014

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In the frame of the iAREA projects (Impact of absorbing aerosols on radiative forcing in the European Arctic) a pilot field campaign was undertaken in March and April 2014 on Spitzbergen. Measurements were supported by the GEM-AQ model forecast.

The iAREA project is combined of experimental and theoretical research in order to contribute to new knowledge on the impact of absorbing aerosols on the climate system in the European Arctic (<http://www.igf.fuw.edu.pl/iAREA>).

The GEM-AQ model is a chemical weather model. The core of the model is based on a weather prediction model with environmental processes (chemistry and aerosols) implanted on-line and are interactive (i.e. providing feedback of chemistry on radiation and dynamics). Numerical experiments are performed with the computational grid resolution of ~ 15 km.

The purpose of the modeling part of the pilot campaign was to assess model configuration for further studies in the frame of iAREA. The base chemical forecast was undertaken with standard emission fields derived from EDGAR and GEIA inventories. For an alternative setup emissions developed by NILU in the ECLIPSE project will be used (Klimont et al., 2013).

We will present evolution of modelled profiles of meteorological parameters and pollutants concentrations for the location of two measurement stations on Spitzbergen during campaign period. Special focus will be on the differences in vertical distribution of PM₁₀. Results will be discussed in the context of synoptic situations in the Arctic.