



## **Impact of ship emissions on air pollution and AOD over North Atlantic and European Arctic**

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

A tropospheric chemistry model GEM-AQ (Global Environmental Multiscale Air Quality) was used as a computational tool. 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). The numerical grid covered the Euro-Atlantic region with the resolution of 50 km. Emissions developed by NILU in the ECLIPSE project was used (Klimont et al., 2013).

The model was run for two 1-year scenarios. 2014 was chosen as a base year for simulations and analysis. Scenarios include a base run with most up-to-date emissions and a run without maritime emissions. The analysis will focus on the contribution of maritime emissions on levels of particulate matter and gaseous pollutants over the European Arctic, North Atlantic and coastal areas. The annual variability will be assessed based on monthly mean near-surface concentration fields.

Analysis of shipping transport on near-surface air pollution over the Euro-Atlantic region will be assessed for ozone, NO<sub>2</sub>, SO<sub>2</sub>, CO, PM10, PM2.5. Also, a contribution of ship emissions to AOD will be analysed.