

**P68 The impact of emissions from oil/gas extraction in the Arctic: A regional case study using WRF/Chem and aircraft campaign measurements from the EU ACCESS project**

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Exploitation of oil/gas reserves is already underway in the Arctic and is likely to increase in the future due to increased accessibility due to reduced sea ice. Extraction and transport of oil and gas results elevated concentrations of both air pollutants and climate forcers, which is a particular concern in the Arctic region as it's one of the most sensitive regions to global environmental change. Emissions from oil/gas extraction activities in the Arctic are poorly characterized, and their impacts on local and regional pollution are not well known. Moreover, chemical transport models have difficulties reproducing Arctic pollutant levels making improved understanding the impact of oil/gas emissions in the region particularly challenging.

As part of the EU ACCESS project an aircraft campaign was conducted in summer 2012 to study Arctic pollution including local emissions from offshore oil/gas platforms. We present results to quantify the pollution emitted using a combination of data analysis and high-resolution WRF-Chem simulations using RACM/MADE/SOA-VBS chemical-aerosol schemes. Model runs are used to study the transformation and fate of emissions in the Arctic boundary layer. Results show that model simulations, run with updated gas/oil extraction emissions, significantly improves the predicted plume concentrations downwind from the facilities. In addition, we examine if local emissions have an impact on the surface radiation budget.