Advances in Meteorology

Hindawi

Special Issue on

Transport and Fate of Contaminants over the Arctic: Sources and Local to Global Climate Implications

CALL FOR PAPERS

Observations show that the Arctic has warmed much more rapidly in the past few decades compared to global-mean temperature increases, due to increased heat transport from lower latitudes and by local in situ response to radiative forcing due to changes in greenhouse gases and aerosols in the area. Model calculations suggest that, in addition to warming induced by increases in global atmospheric carbon dioxide concentrations, changes in short-lived climate forcers, such as tropospheric ozone, methane, and aerosols (e.g., black carbon and sulfate) in the Northern Hemisphere, have contributed substantially to this Arctic warming since 1890.

Climate change, together with economic drivers, is also opening up the Arctic to new sources of pollution, such as shipping or oil/gas extraction, which may lead to significant local and/or regional increases in surface pollutant levels and associated impacts on Arctic air quality.

Arctic trace gases are likely to exhibit different regional sensitivities from those of aerosols due to different emission sources, longer lifetimes, and the fact that some species are not efficiently lost by wet deposition during long-range transport.

Consequently, there is a need to better understand the sources and sinks of these species, their atmospheric transformation under Arctic conditions, and their effects on Arctic climate. We invite authors to contribute original high-quality research articles as well as review articles that will illustrate the current understanding of the Arctic climate-chemistry system through observations and modelling.

Potential topics include but are not limited to the following:

- Measurements and modelling of pollutants over the Arctic
- Long-range transport of pollutants to the Arctic
- Deposition of pollutants over the Arctic
- Sources of pollutants in the Arctic
- New particle formation and transformation of the Arctic aerosols
- Halogen species in the Arctic
- Vertical profiles of pollutants over the Arctic
- Chemistry-climate interactions over the Arctic
- Projections of Arctic future climate
- Future challenges in reducing the Arctic pollution

Authors can submit their manuscripts through the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/amete/tfca/.

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