



Aerosol climatology in the Arctic from CALIOP and ECHAM5-HAMMOZ

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Climate is rapidly changing in the Arctic. There is an increasing body of evidences that aerosols in the Arctic, such as sulfates, organic carbon (OC), and black carbon (BC) may play a substantial role. Large uncertainties remain however on the sources and properties of aerosols found in the Arctic. While Europe has been recognized for a long time as a major source of pollution, recent works have suggested that anthropogenic emissions from Asia and forest fires in boreal regions may also substantially contribute. We report here a study on the long range transport of aerosols from the mid-latitudes towards the Arctic. We will present timeseries of vertically resolved attenuated backscatter from CALIOP collected during 2008 over several sites of the Northern Hemisphere located on the expected pathways of pollution traveling from the mid-latitudes into the Arctic. We will further compare these observations to results obtained from simulations performed with the fully coupled model of aerosol-chemistry-climate ECHAM5-HAMMOZ to assess the model's ability to reproduce long range transport of aerosols.