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Sources of Aerosol Sulphate in the Arctic Atmosphere[1] REMPILLO OFELIA, ANN-LISE NORMAN, A. MICHELLE SEGUIN, University of Calgary — Sulphate aerosols play a key role in the earth's radiation balance via direct and indirect aerosol effect. One of the major sources of biogenic sulphate aerosols in the Arctic atmosphere is Dimethyl Sulphide, a compound released by phytoplankton. Change in the Arctic Climate could potentially alter the amount of DMS derived sulphate released into the atmosphere and thus affect climate radiative forcing. The formation of sulphate from the oxidation of Dimethyl Sulphide (DMS) could provide a biological climate feedback in the event of a warming episode. The feedback mechanism, however, is highly uncertain. Measurements of atmospheric DMS, and its major oxidation products were obtained during the Fall 2007 and Fall 2008 cruise in the Canadian Arctic. Preliminary results from these measurements are presented along with external conditions that may affect these. Isotope analysis is used to determine sources of aerosol sulphate and apportion the amount derived from DMS. This we hope will shed light on the mechanism of DMS oxidation in the atmosphere and the factors that affect it, and ascertain the effects of DMS in the changing Arctic climate.

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