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THE NEXUS BETWEEN SEA-ICE, DIMETHYLSULPHIDE (DMS), AEROSOLS AND CLIMATE CHANGE

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The effect of climate change in the Southern Ocean is likely to be major perturbation to the physical environment, which will lead to biogeochemical and ecological change. Ice-algae in the sea-ice zone are thought to contain large amounts of organic sulphur as dimethylsulphoniopropionate (DMSP), the precursor to DMS. Seasonal melting of sea-ice can release this DMSP with consequences for the DMS sea-to-air flux and subsequent formation of sulphate aerosols. In this paper we discuss the relationship between sea-ice extent, ice-algae, DMS production, and sulphate aerosols as detected by the SeaWIFS satellite sensor. We also discuss the impact of projected climate change on the future production and cycling of DMS in the Antarctic Southern Ocean.