Supplementary material for:

Sensitivity of Arctic sulfate aerosol and clouds to changes in future surface seawater dimethylsulfide concentrations

Rashed Mahmood[1,2], Knut von Salzen[1,2], Ann-Lise Norman[3], Martí Galí[4] and Maurice Levasseur[5]

[1]School of Earth and Ocean Sciences, University of Victoria, Victoria, British Columbia, Canada
[2]Canadian Center for Climate Modelling and Analysis, Environment and Climate Change Canada, Victoria, British Columbia, Canada
[3]Department of Physics and Astronomy, University of Calgary, Calgary, Alberta, Canada
[4]Takuvik Joint International Laboratory & Québec-Océan, Université Laval, Québec, Québec, Canada
[5]Département de biologie and Québec-Océan, Université Laval, Québec, Québec, Canada

Table S1. Changes in Arctic sulfate emission, wet deposition, and precipitation (%)*			
	Emission	Wet deposition	Precipitation
CLIM	33.34	-40.60	14.43
10×CLIM	34.04	-7.47	14.35
UNFM	53.19	-9.00	14.31
10×SAT	47.40	-15.07	14.29
CNTRL	0	-47.67	14.54
*100×(2050Exp – 2000Exp)/2000Exp; where Exp represents (either of CLIM, 10×CLIM, UNFM, 10×SAT, CNTRL).			

Table S2. Future changes in Arctic mean wet deposition relative to present day wet deposition (%)*	
CLIM	42.45
10×CLIM	45.67
UNFM	72.10
10×SAT	55.92
*100×{(2050Exp-2050CNTRL)-(2000Exp-2000CNTRL)}/ (2000Exp-2000CNTRL); where Exp represents (either of CLIM, 10×CLIM, UNFM, 10×SAT)	

Table S3. The fraction of Arctic DMS emissions that is removed by wet deposition (%)*		
	2000	2050
CLIM	76.52	81.75
10×CLIM	68.43	74.37
UNFM	55.31	62.13
10×SAT	76.55	80.97
*100×(Exp:wetdep-CNTRL:wetdep)/Exp:emission; where Exp represents (either of CLIM, 10×CLIM, UNFM, 10×SAT) and wetdep is wet deposition		
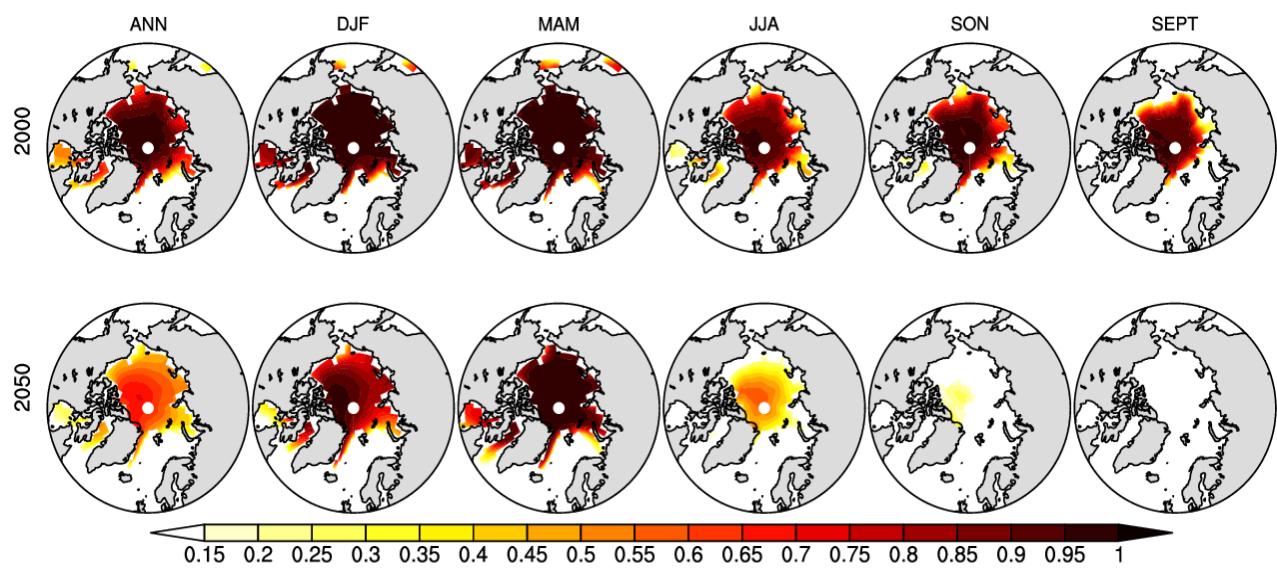
Figure S1: Fraction of sea ice in the Arctic for 2000 and 2050 simulations.
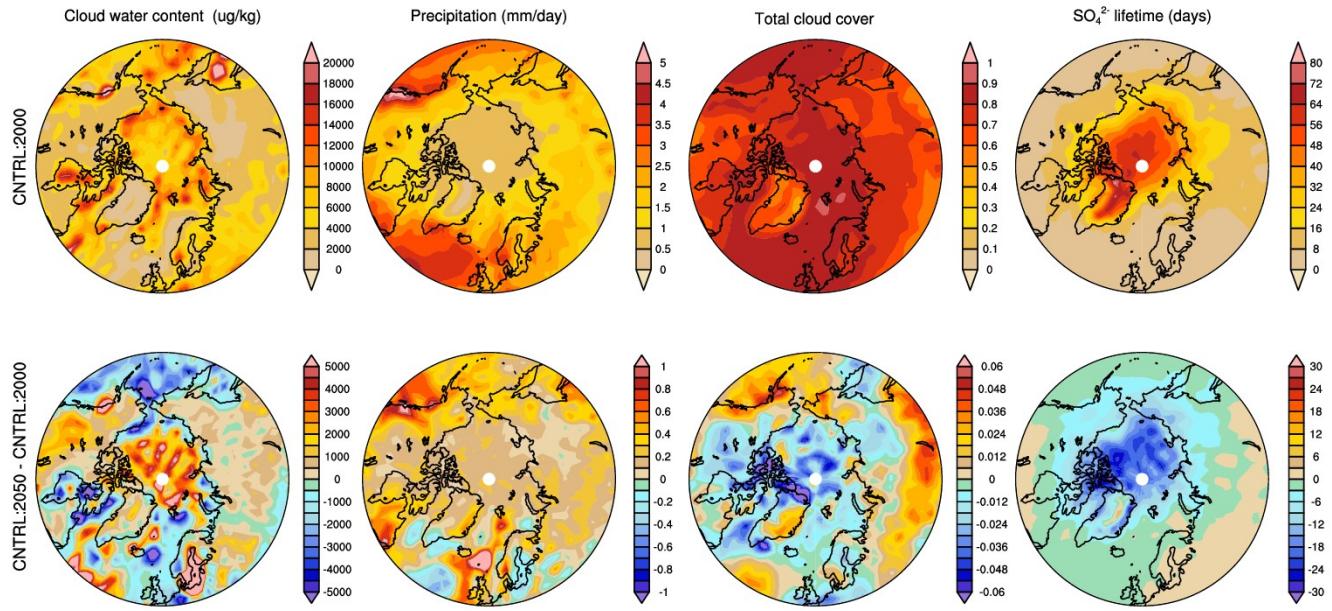
Figure S2: Annual mean cloud water content in low clouds, precipitation, total cloud cover and sulfate lifetimes in CNTRL for year 2000 (top row). The bottom row represents net changes that occur due to aerosol, greenhouse gases, and sea ice changes between 2000 and 2050.
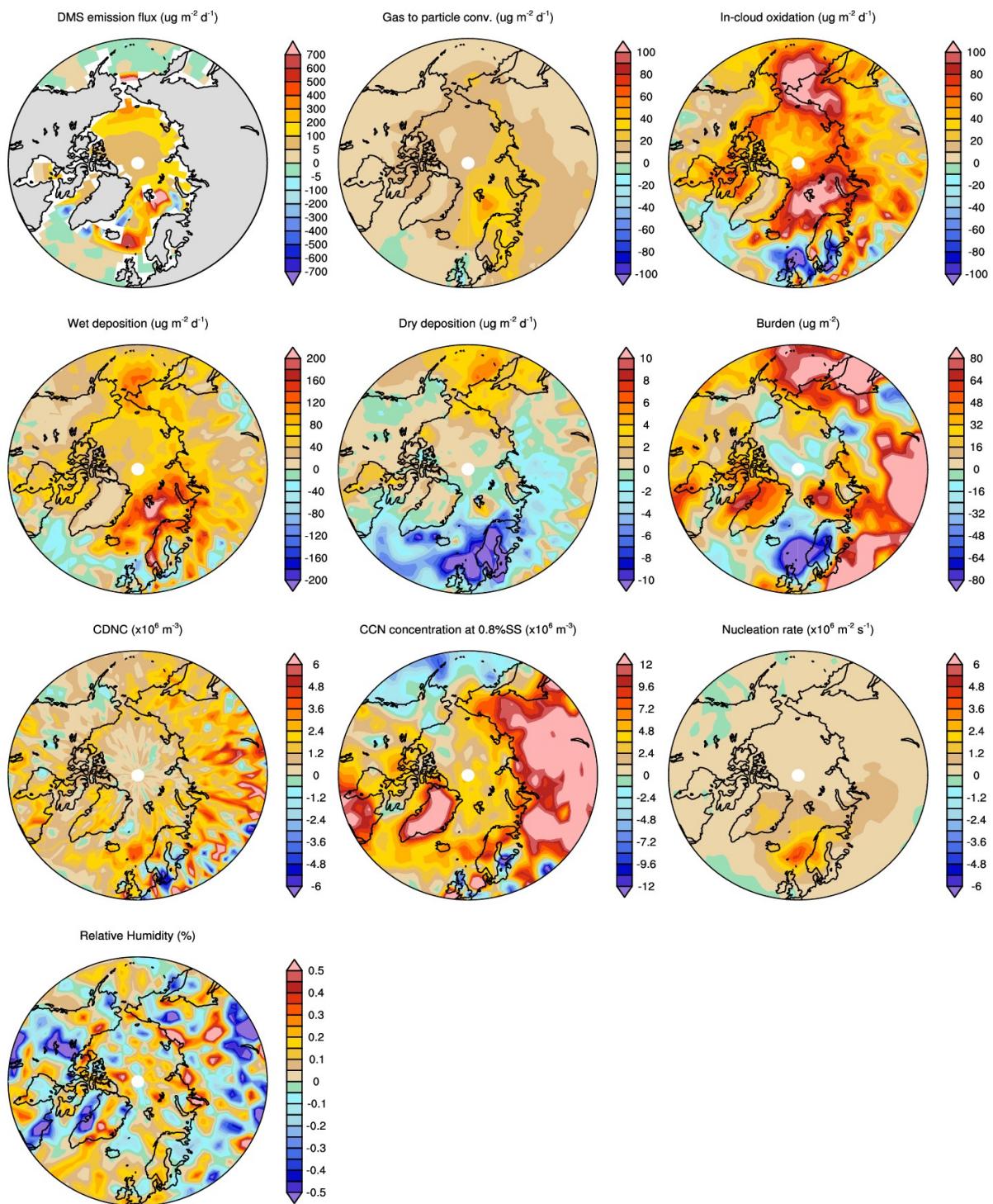
Figure S3: Difference between 2050 and 2000 for 10xDMS: [(10xDMS:2050 − CNTRL:2050) − (10xDMS:2000-CNTRL:2000)]. CDNC and CCN concentrations are for the 1st model layer.

Cloud radiative forcing (W m^{-2}) CNTRL:2050 - CNTRL:2000
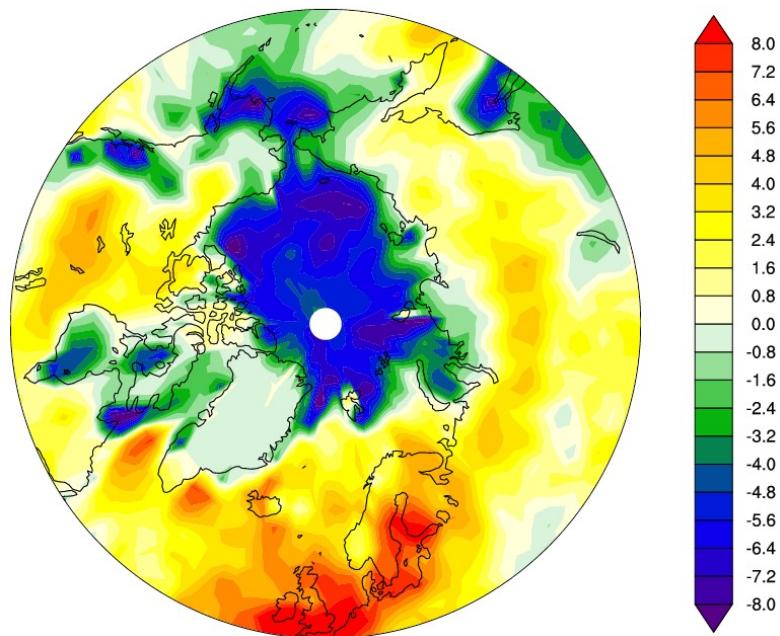
Figure S4: Annual mean cloud radiative forcing (2050-2000) for CNTRL.