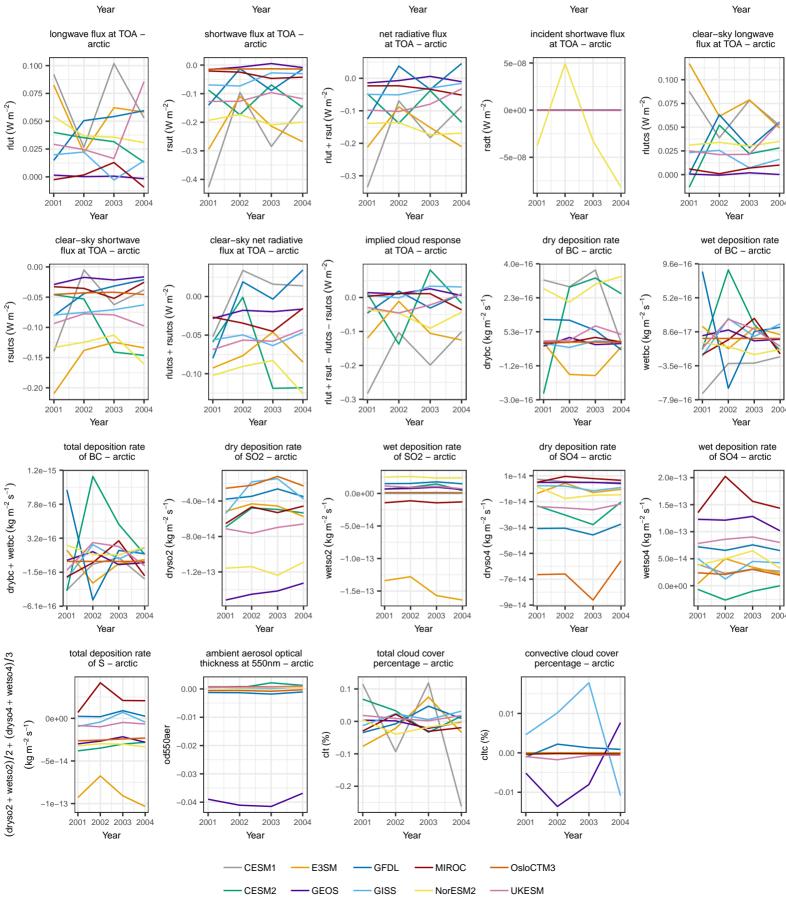
so2-no-season: absolute difference surface flux of SO2 – arctic surface flux of BC surface concentration surface concentration of SO4 – arctic surface concentration of SO2 – arctic arctic emiso2 (kg $m^{-2} s^{-1}$) 0e+00 mmrso4 (kg kg⁻¹) nmrbc (kg kg $^{-1}$) so2 (kg kg⁻¹ 2003 2004 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 Year Year Year Year incident shortwave flux at TOA – arctic clear-sky longwave flux at TOA - arctic shortwave flux at TOA net radiative flux arctic at TOA - arctic 0.0 0.0 $rlut + rsut (W m^{-2})$ rlutcs $(W m^{-2})$ 0.075 $rsut(Wm^{-2})$ $rsdt (W m^{-2})$ 0e+00 -0.1 -0.2 0.050 -0.2 -0.3 0.025 -5e-08 -0.3 0.000 -0.4 2003 2001 2002 2003 2001 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year clear-sky net radiative implied cloud response dry deposition rate wet deposition rate flux at TOA - arctic at TOA - arctic of BC - arctic of BC - arctic 4.0e-16 9.6e-16 rlut + rsut - rlutcs - rsutcs (W m-2) rlutcs + rsutcs (W m⁻² 0.00 0.0 5.2e-16 $drybc (kg m^{-2} s^{-1})$ wetbc $(kg m^{-2} s^{-1})$ -0.1 5.3e-17 -0.05 -0.2 -0.10 -3 0e-16 2003 2004 2001 2003 2001 2003 2001 2003 2001 2003 Year Year Year Year dry deposition rate of SO4 – arctic wet deposition rate of SO4 – arctic dry deposition rate wet deposition rate of SO2 - arctic of SO2 - arctic 2.0e-13 0.0e + 0.0e +wetso2 $(kg m^{-2} s^{-1})$ $dryso2 (kg m^{-2} s^{-1})$ $dryso4 (kg m^{-2} s^{-1})$ wetso4 (kg m⁻² s⁻¹) -5.0e-14 -1.2e-13 0.0e+00 -1.5e-13 -9e-14 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2001 2002 2003 2004 Year Year ambient aerosol optical total cloud cover convective cloud cover percentage - arctic percentage - arctic 0.00 0.1 0.01 -0.01 0.0 clt (%) cltc (%) -0.02 -0.1 -0.03



 $\mathrm{emibc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$

-3.3e

2001