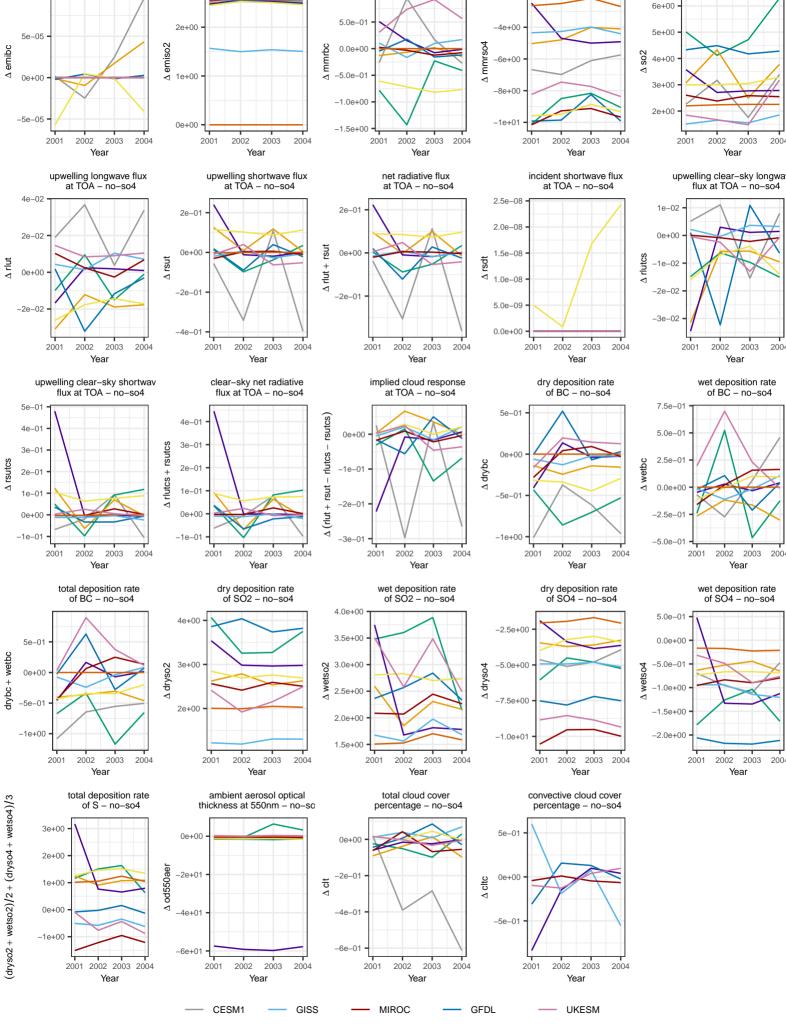
arctic: absolute difference surface flux of SO2 – no–so4 surface concentration surface concentration of SO4 – no–so4 surface concentration of SO2 – no–so4 of BC - no-so4 1.0e+00 -2e+00 6e+00 5.0e-01 5e+00 0.0e+00 ∆ mmrso⁄ 4e+00 -6e+00 -5.0e-01 3e+00 -1.0e+00 2e+00 -1e+0-1.5e+00 2003 2002 2003 2002 2003 2002 2002 2001 2001 2001 2003 Year Year Year Year upwelling clear-sky longwav flux at TOA - no-so4 net radiative flux incident shortwave flux at TOA - no-so4 at TOA - no-so4 2.5e-08 1e-02 2e-01 2.0e-08 0e+00 0e+00 1.5e-08 -1e-02 △ rlut + 1.0e-08 -2e-02 5.0e-09 0.0e+00 2003 2002 2003 2001 2002 2003 2004 2001 2002 2001 2002 2003 Year Year Year implied cloud response dry deposition rate wet deposition rate at TOA - no-so4 of BC - no-so4 of BC - no-so4 7.5e-01 5.0e-01 0e+00 ∆ (rlut + rsut - rlutcs 2.5e-01 ∆ drybc -1e+00 -5.0e-01 2003 2001 2002 2003 2001 2002 2003 2004 2001 2002 2003 Year Year Year Year dry deposition rate of SO4 – no–so4 wet deposition rate of SO4 – no–so4 wet deposition rate of SO2 - no-so4 4.0e+00 5.0e-01 3.5e+00 3.0e+00 -5.0e-01 -5.0e+0.0∆ dryso² -1.0e+002.5e+00 2.0e+00 -2.0e+00 -1.0e+0.11.5e+00 2003 2002 2003 2002 2003 2002 2003 Year Year total cloud cover convective cloud cover percentage - no-so4 percentage - no-so4



E3SM

CESM2

NorESM2

OsloCTM3

GEOS

surface flux of BC – no-so4

1e-04