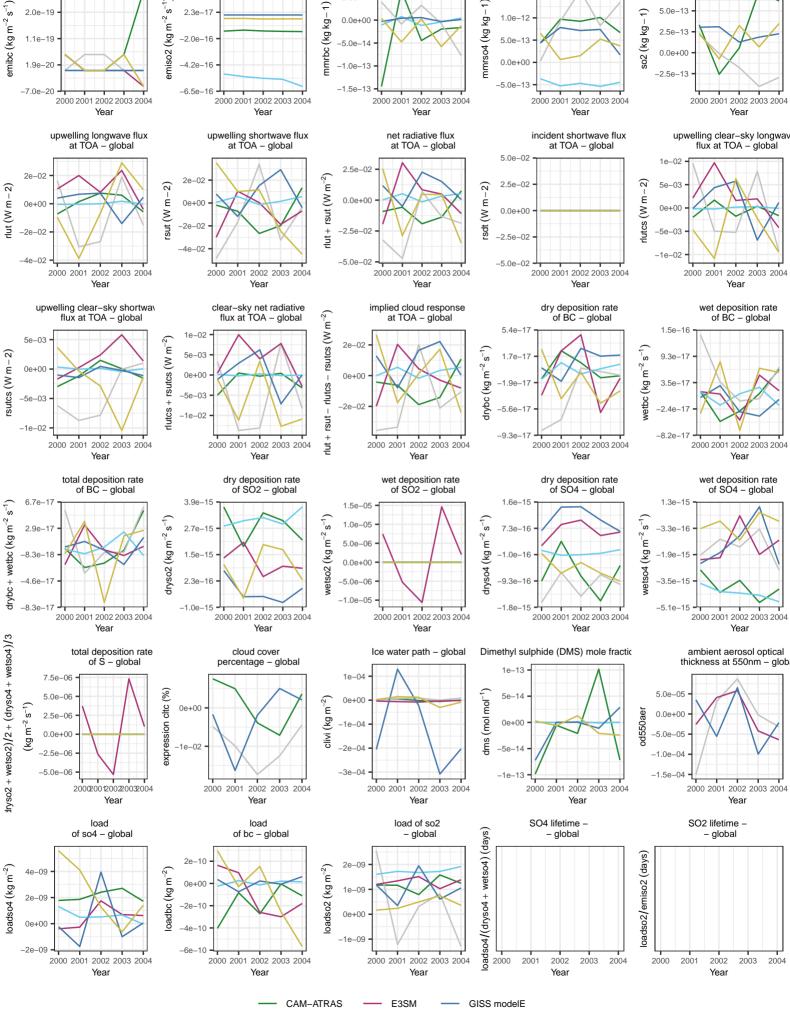
shp-atl-shift-1950: absolute difference surface flux surface concentration surface concentration of SO4 – global surface concentration of SO2 – global of SO2 – global 2 5e-16 1.5e-12 5 0e-14 (kg kg - 1)nmrbc (kg kg-1) 5.0e-13 (kg kg – 1) 0.0e+00 -2.0e-16 -5.0e-14 0.0e+00 0.0e+00 -4 2e-16 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year upwelling shortwave flux at TOA – global upwelling clear-sky longway flux at TOA - global net radiative flux incident shortwave flux at TOA – global at TOA - global 5.0e-02 2.5e-02 $lut + rsut (W m^{-2})$ 2e-02 lutcs (W m-2) 2 5e-02 rsdt (Wm-2)0.0e+00 0e+00 0.0e+00 -2e-02 -2.5e-02 -1e-02 -5.0e-02 -5.0e-02 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year clear-sky net radiative flux at TOA - global implied cloud response dry deposition rate of BC – global wet deposition rate of BC – global $rlutcs-rsutcs\,(W\,m^{-2})$ at TOA - global 2e-02 vetbc (kg m⁻² s^{-'} 9.3e-17 drybc (kg m⁻² s⁻ 0e+00 0e+00 3.5e-17 -2e-02 rsut – -1e-02 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year dry deposition rate of SO2 – global wet deposition rate of SO4 – global wet deposition rate of SO2 – global dry deposition rate of SO4 – global 3 9e-15 1 6e-15 1.3e-15 1.5e-05 $vetso2 (kg m^{-2} s^{-1}$ dryso4 (kg m^{-2} s⁻¹ 1.0e-05 vetso4 (kg m⁻² 5.0e-06 1.5e-15 0.0e+00 2.3e-16 -5.0e -9.3e-16 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year cloud cover Ice water path - global Dimethyl sulphide (DMS) mole fractic ambient aerosol optical thickness at 550nm - glob percentage - global 5e-14 $^{-2}$) 0e+00 _lom lom) smp 0e+00 0.0e+00 (kg r 0e+00-5 0e-05 -3e-04 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year SO4 lifetime SO₂ lifetime load load of so2 of bc - global – global – global - global wetso4) (2e-10 2e-09 0e+00



CESM1

GEOS

NorESM2

surface flux of BC – global

2 96-19