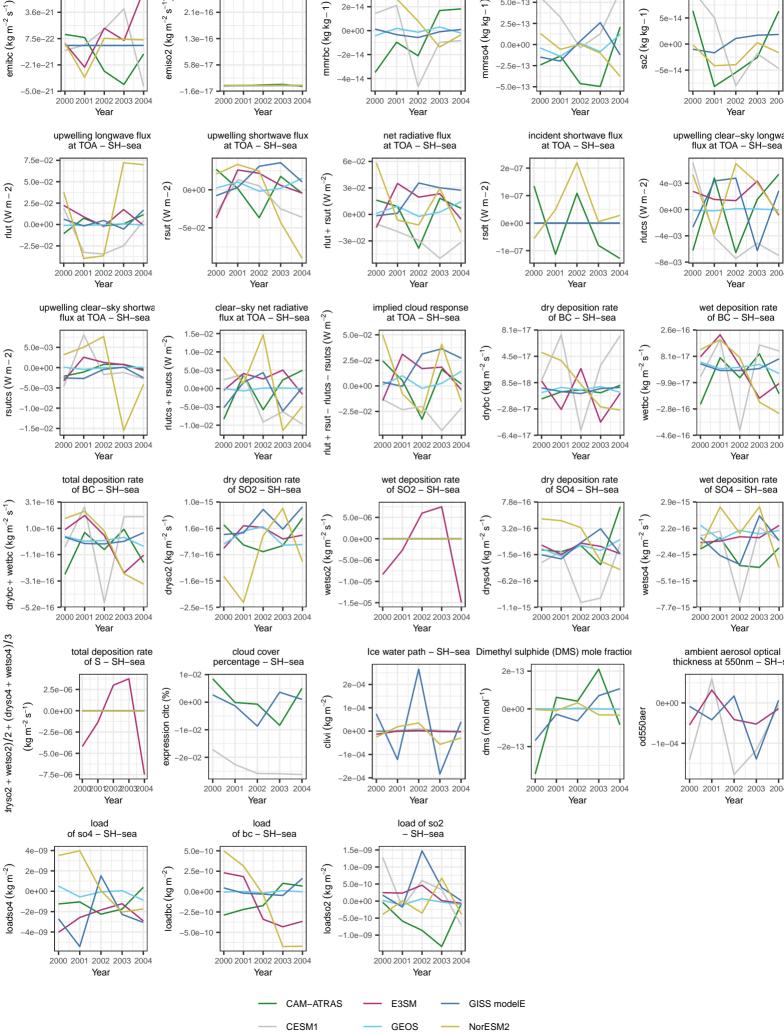
## shp-atl-shift-1950: absolute difference surface flux of SO2 – SH–sea surface concentration of SO4 – SH–sea surface flux of BC – SH–sea surface concentration surface concentration of SO2 – SH–sea 2 8e-16 nmrbc (kg kg-1) əmiso2 (kg $\mathrm{m}^{-2} \mathrm{s}^{-1}$ 2.1e-16 so2 (kg kg – 1) 2.5e-13 0e+00 mmrso4 (kg 1.3e-16 0e+00 0.0e+00 5.8e-17 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year upwelling shortwave flux at TOA – SH-sea net radiative flux at TOA – SH–sea upwelling clear-sky longway flux at TOA - SH-sea incident shortwave flux at TOA – SH–sea 6e-02 2e-07 $rsut (W m^{-2})$ 4e-03 rlutcs (Wm-2)3e-02 rsut (Wm-2)rsdt (Wm-2)1e-07 0e+00 00+00 ± ± -3e-02 -1e-07 -8e-03 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year clear-sky net radiative flux at TOA - SH-sea implied cloud response dry deposition rate of BC – SH–sea wet deposition rate of BC – SH–sea rsutcs $(W m^{-2})$ at TOA - SH-sea 8 1e-17 2 6e-16 1.5e-02 $m^{-2}$ 1.0e-02 $m^{-2} s^{-1}$ drybc (kg m<sup>-2</sup> s<sup>-</sup> rsutcs (W 5.0e-03 rlutcs vetbc (kg 0.0e + 0.00.0e+00 -2.5e-02 rsut 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year dry deposition rate of SO2 – SH-sea wet deposition rate of SO2 – SH-sea dry deposition rate of SO4 – SH-sea wet deposition rate of SO4 – SH-sea 1 0e-15 7 8e-16 2 9e-15 5.0e-06 dryso2 (kg $m^{-2}$ s<sup>-1</sup>. $\rm wetso2~(kg~m^{-2}~s^{-1}$ $dryso4 (kg m^{-2} s^{-1})$ wetso4 $(kg m^{-2} s^{-1}$ 0.0e + 0.0e +-1 6e-15 -6 2e-16 -5 1e-15 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year Ice water path - SH-sea Dimethyl sulphide (DMS) mole fraction cloud cover ambient aerosol optical thickness at 550nm – SH–se percentage - SH-sea 1e-02 2e-04 \_lom lom) smb clivi (kg m<sup>-2</sup>) 0e+00 양 1e-04 0e+00 od550aer expression -1e-02 0e+00 -2e-02 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year load load of so2 of bc - SH-sea - SH-sea 5.0e-10 0.0e+00 0.0e+00 -5.0e-10



6.5e-21