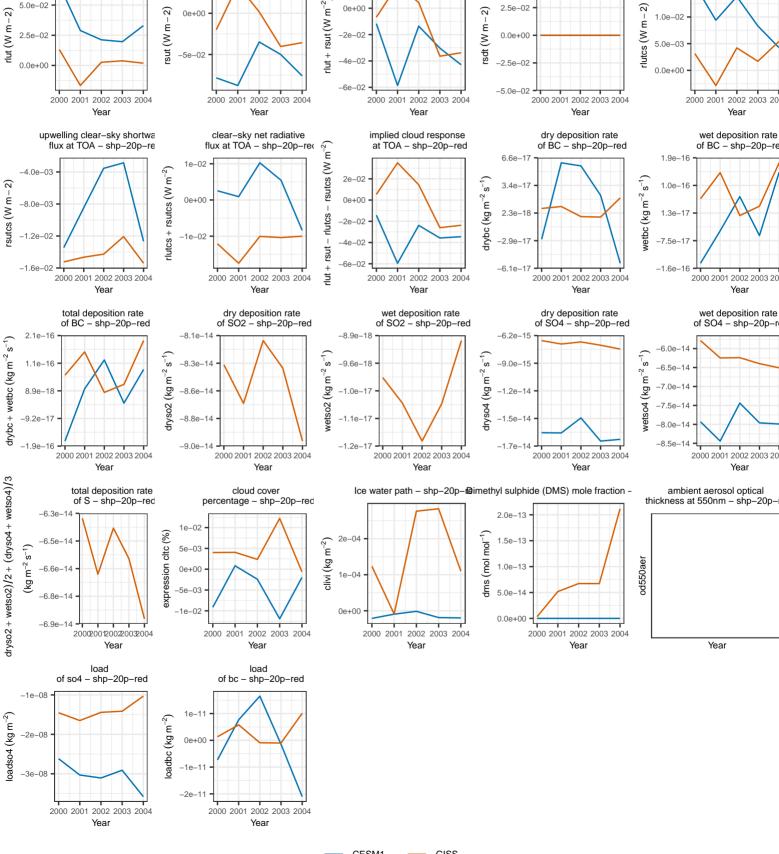
sea: absolute difference surface flux of SO2 – shp–20p–red surface concentration surface concentration surface concentration of BC - shp-20p-red of SO4 - shp-20p-red of SO2 - shp-20p-red -1.1e-13 nmrso4 (kg kg – 1) nmrbc (kg kg-1) -2.0e-12 so2 (kg kg – _5e_14 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year upwelling shortwave flux at TOA – shp–20p–red upwelling clear-sky longway flux at TOA - shp-20p-re incident shortwave flux at TOA – shp–20p–red net radiative flux at TOA - shp-20p-red 5 0e=02 1.5e-02 $rsut(W m^{-2})$ rlutcs (W m-2) rsdt (Wm-2)1.0e-02 -2e-02 0.0e + 0.05.0e-03 -2 5e-02 0.0e + 0.0-6e-02 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year implied cloud response dry deposition rate wet deposition rate clear-sky net radiative $\rm rsutcs \ (W \ m^{-2})$ at TOA - shp-20p-red of BC - shp-20p-red of BC - shp-20p-red 6.6e-17 2e-02 3.4e-17 wetbc (kg $\mathrm{m}^{-2}\,\mathrm{s}^{-1}$ 1.0e-16 drybc (kg $m^{-2} s^{-1}$ 0e+00 rlutes -2e-02 40_02 rsut -6e-02 -6.1e-1 Ė 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 SO4 – shp–20p–red wet deposition rate of SO4 – shp–20p–red dry deposition rate of SO2 – shp–20p–red wet deposition rate of SO2 – shp–20p–red -8.9e-18 -6.2e-15 wetso2 (kg $\mathrm{m}^{-2} \mathrm{s}^{-1}$ dryso4 (kg m^{-2} s⁻ wetso4 (kg m⁻² -1.2e-14 -8.0e-14 -8.5e-14 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Ice water path - shp-20p-@imethyl sulphide (DMS) mole fraction cloud cover ambient aerosol optical thickness at 550nm - shp-20p-red 2.0e-13 1.5e-13 clivi $(kg m^{-2})$ _lom lom) smp od550aer 1.0e-13 1e-04 5.0e-14 0e+00 0.0e+00 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001



surface flux of BC – shp–20p–red

2000 2001 2002 2003 2004

Year

upwelling longwave flux at TOA – shp–20p–red

emiso2 (kg m⁻² s⁻

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

1.4e-22

-4.9e-21