SH-land: absolute difference surface flux surface concentration surface concentration surface concentration of SO2 - shp-ind-shift-19 of BC - shp-ind-shift-195 of SO4 - shp-ind-shift-195 of SO2 - shp-ind-shift-195 2e-12 nmrso4 (kg kg – 1) nmrbc (kg kg-1) 2e-13 əmiso2 (kg m $^{-2}$ s $^{-1}$ 1.3e-16 so2 (kg kg – 1) 1e-13 1e-12 0e+00 0e+00 0e+00 _3 2e_16 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year upwelling shortwave flux at TOA – shp-ind-shift-195 net radiative flux at TOA – shp-ind-shift-198 upwelling clear-sky longway flux at TOA - shp-ind-shift-1 incident shortwave flux at TOA – shp-ind-shift-19 1e-01 5.0e-02 1e-01 rlut + rsut $(W m^{-2})$ 2e-02 5 sut (Wm-2)rsdt (Wm-2)5e-02 0e+00 lutcs (W m-1e-02 0.0e + 0.000+00 -1e-01 -1e-02 -2 5e-02 -2e-02 -1e-01 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year clear-sky net radiative implied cloud response dry deposition rate wet deposition rate flux at TOA - shp-ind-shift-1 $\rm rsutcs \ (W \ m^{-2})$ at TOA - shp-ind-shift-19 of BC - shp-ind-shift-19 of BC - shp-ind-shift-19 2.6e-15 5.0e-02 2e-02 3.7e-16 1.4e-15 wetbc (kg m⁻² s⁻ drybc (kg m⁻² s⁻ 0.0e + 0.0e +0e+00 rlutcs -2e-02 8.7e-17 -9.9e-16 rsut -4e-02 -1.5e-01 -5.3e-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–ind–shift–19 dry deposition rate of SO2 – shp–ind–shift–19 wet deposition rate of SO2 – shp-ind-shift-19 wet deposition rate of SO4 – shp-ind-shift-19 2.0e 3.1e-15 9.2e-15 wetso2 (kg m^{-2} s⁻¹ dryso4 (kg $\mathrm{m}^{-2}\,\mathrm{s}^{-1}$ vetso4 (kg $\mathrm{m}^{-2}\,\mathrm{s}^{-1}$ 2.0e-15 3.3e-17 -1.0e-18 8.8e-16 -9.3e-15 -2.0e-15 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Ice water path - shp-ind-Diffethyl sulphide (DMS) mole fraction - sh cloud cover ambient aerosol optical thickness at 550nm - shp-ind-shift-1 percentage - shp-ind-shift-19 4e-02 _lom lom) smb clivi (kg m^{-2}) 0e+00 2e-02 0e+00 od550aeı 0e+00 -1e-03 -2e-02 -1e-13 -4e-02 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year load of bc - shp-ind-shift-1950

surface flux

2000 2001 2002 2003 2004

Year

upwelling longwave flux at TOA – shp-ind-shift-195

of BC - shp-ind-shift-19!

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

2.7e-19

1.0e-19

-6.0e-20

0e+00

4e-02

-8e-02

rlut (Wm-2)