shp-20p-red: absolute difference surface flux of SO2 – SH–sea surface concentration of BC – SH–sea surface flux surface concentration surface concentration of BC - SH-sea of SO4 - SH-sea of SO2 - SH-sea $\mathrm{emibc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$ -2 0e-12 nmrbc (kg kg – 1) əmiso $2 (kg m^{-2} s^-$ 1.7e-21 (kg kg – 1) 0e+00 -6e-13 nmrso4 (kg kg so₂ -3.0e-21 _8e_13 -3.8e-14 -6e-14 -3.5e-12 -9e-13 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year Year upwelling longwave flux at TOA – SH-sea upwelling shortwave flux at TOA – SH-sea net radiative flux at TOA – SH–sea upwelling clear-sky longwa flux at TOA - SH-sea incident shortwave flux at TOA – SH–sea 5.0e-02 6e-02 0.0e+00 $' m^{-2}$ 1.0e-02 5 3e-02 rlut (Wm-2)(Wm-2)(Wm-2)rsut (W r 0.0e+00 rlutcs (W m -_2 5e_02 5 0e-03 0.0e + 0.00e+00 -5 0e-02 -2.5e-02 rsdt -2.5e-02 -5.0e-03 _7 5e_02 -3e-02 -1.0e-02 -1 0e-01 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year Year upwelling clear-sky shortway clear-sky net radiative implied cloud response dry deposition rate wet deposition rate flux at TOA - SH-sea flux at TOA - SH-sea at TOA - SH-sea of BC - SH-sea of BC - SH-sea rsutcs (W m⁻²) 5.0e-03 -5e-03 $^{\prime}$ m⁻²) 2e-02 rsutcs (W m-2) -6e-03 0.0e+00 8.0e-18 1.6e-16 drybc (kg $m^{-2} s^{-1}$ lutes + rsutes (W 0e+00 wetbc (kg m^{-2} -7e-03 -5.0e-03 -2.8e rlutcs -2e-02 -8e-03 -6.3e-17 -9.3e-17 -9e-03 rsut -6e-02 _9 9e_1 į 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year Year dry deposition rate of SO2 – SH-sea total deposition rate of BC – SH–sea wet deposition rate of SO2 – SH–sea dry deposition rate of SO4 – SH–sea wet deposition rate of SO4 – SH-sea 3.3e-16 -2.5e-14 -5.2e-19 -1.9e-15 -1.8e-14 $\mathrm{drybc} + \mathrm{wetbc} \, (\mathrm{kg} \, \mathrm{m}^{-2} \, \mathrm{s}^{-1})$ dryso2 (kg m $^{-2}$ s $^{-1}$ wetso2 (kg m⁻² s⁻ 1.7e-16 $(kg m^{-2} s^{-}$ wetso4 $(kg m^{-2})$ 6.8e-18 -2.6e-14 -2.2e-18 -3.7e-15 -2.5e-14 drvso4 -1.6e-16 -2.8e-14 -3.8e-18 -3.3e-14 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year dryso2 + wetso2)/2 + (dryso4 + wetso4)/3Ice water path - SH-sea Dimethyl sulphide (DMS) mole fraction total deposition rate cloud cover ambient aerosol optical of S - SH-sea percentage - SH-sea thickness at 550nm -2.0e-14 1.5e-02 3e-13 1.0e-02 8 1.5e-04 clivi (kg ${\sf m}^{-2}$) lom lom) smb $(kg m^{-2} s^{-1})$ cltc 5.0e-03 -5.0e-05 1.0e-04 expression -1.0e-04 0.0e+00 5.0e-05 -1.5e-04 -5.0e-03 -2.2e-14 0.0e+00 -1.0e-02 20002001200220032004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year load load of so2 - SH-sea of bc - SH-sea 3e-11 -5.0e-09 $\log dso4 ~(kg~m^{-2})$ 2e-11 oadbc (kg m⁻²) -1.0e-08 1e-11 0e+00 -1.5e-08 -1e-11 -2e-11 -2.0e-08 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year