## shp-atl-shift: absolute difference surface concentration of BC – SH–sea surface flux surface flux surface concentration surface concentration of BC - SH-sea of SO2 - SH-sea of SO4 - SH-sea of SO2 - SH-sea 4e-01 0e+00 2e-05 20-01 5.0e-03 2e-01 1e-01 0e+00 -1e-01 so2 0e+00 -2e-05-1e-01 0.0e+00-2e-01 -4e-05 -2e-01 \_03 -4e-0 -3e-01 2000 2001 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2002 2003 2004 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year Year upwelling longwave flux at TOA – SH-sea upwelling shortwave flux at TOA – SH-sea incident shortwave flux at TOA – SH–sea upwelling clear-sky longwav flux at TOA - SH-sea net radiative flux at TOA - SH-sea 5.0e-02 5.0e-02 1e-02 00+00 0e+00 0.0e+0.00.0e + 00∆ rlut --2e-03 -2.5e-02 -2 5e-02 -4e-03-2e-02 -5.0e-02 -5 0e-02 -5.0e-02 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 BC – SH–sea upwelling clear-sky shortway clear-sky net radiative implied cloud response wet deposition rate of BC - SH-sea flux at TOA - SH-sea flux at TOA - SH-sea at TOA - SH-sea rsutcs) 0e+00 5.0e-02 0e+002e-01 1e-01 -1e-02 2.5e-02 -1e-02 rlutcs -Su 00+00 ∆ rsutcs wetbc Δ drybα -2e-02 00+00 ∆ rlutcs + 0.0e+00 -2e-02 rsut -1e-01 \_2e\_01 -2.5e-02 -3e-02 rlut + -3e-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 total deposition rate of BC – SH–sea 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 4e-01 1e-01 0.0e+00 0.0e+00 2e-01 -5.0e-03 drybc + wetbc 0e+00 0e+00 -1.0e-01 -2e-01 -1.0e-01 -1e-01 -4e-01 -1.5e-01 -2e-01 -2.0e-02 -2.0e-01 -6e-0 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 $\frac{dyso2 + wetso2}{2 + (dyso4 + wetso4)/3}$ Ice water path - SH-sea Dimethyl sulphide (DMS) mole fractic total deposition rate cloud cover ambient aerosol optical of S - SH-sea thickness at 550nm - SH-se 2e-01 0.0e+00 0e+00 clivi (kg m<sup>-2</sup>) lom lom) smb 0e+00ctc 1e-01 ∆ od550aeı 1e-01 -5e-02expression -1e-01 0e+00 0e+00 -1e-01 -2e-01 -1e-01-1e-01 20002001200220032004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 Year Year Year Year Year load load of so4 - SH-sea of bc - SH-sea -1e-012.5e-01 loadso4 (kg m<sup>-2</sup>)oadbc (kg m -3e-01-2.5e-01 -4e-01 -5e-01 -5 0e-01 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year