## shp-20p-red-1950: absolute difference surface concentration of BC – NH–sea surface flux surface flux surface concentration surface concentration of SO2 - NH-sea of BC - NH-sea of SO4 - NH-sea of SO2 - NH-sea -6e-01 1e-01 -1.0e+00 -7e-01 ∆ emiso2 ∆ emibc $\Delta so2$ 5e-02 -4e+00 0e+00 -8e-01 -1.5e+000e+00 -9e-01 -6e+00 \_1e+00 -6e-06 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year upwelling longwave flux at TOA – NH-sea upwelling shortwave flux at TOA – NH–sea upwelling clear-sky longwav flux at TOA - NH-sea net radiative flux at TOA - NH-sea incident shortwave flux at TOA – NH–sea 5.0e-02 4e-02 2e-02 4e-03 ∆ rlut + rsut 0e+00 rsut 0e+00 0.0e + 0.0e +-2e-02 -4e-03 -2 5e-02 -4e-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 – NH–sea wet deposition rate of BC – NH–sea upwelling clear-sky shortway clear-sky net radiative implied cloud response flux at TOA - NH-sea flux at TOA - NH-sea at TOA - NH-sea rsutcs) -1e-02 6e-02 -1e-02 1e-01 -2e-02 rlutcs -56-02 rsu wetbc ∆ rsutcs 5.0e-02 -3e-022e-02 -3e-02 0e+00 rsut 0.0e+00 -4e-02 -5e-02 -4e-02 0e+00 rlut + -5 0e-02 -1e-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 – NH–sea dry deposition rate of SO2 – NH–sea wet deposition rate of SO2 – NH–sea dry deposition rate of SO4 – NH–sea wet deposition rate of SO4 – NH–sea 2e-01 -5.5e-01 -1.2e+00 -6.0e-01 1e-01 drybc + wetbc ∆ dryso2 ∆ drvso4 -6.5e-01 0e+00 -8e-01 -8e-01 -1e-01 -1.2e+00 -9e-01 −1e+00 -7.5e-01 -2e-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 $\frac{dryso2 + wetso2}{2 + (dryso4 + wetso4)/3}$ Ice water path - NH-sea Dimethyl sulphide (DMS) mole fraction total deposition rate cloud cover ambient aerosol optical of S - NH-sea percentage - NH-sea thickness at 550nm - NH-sea 2e-01 2e-01 expression cltc (%) -1.3e+00-2e-02 clivi (kg $m^{-2}$ ) \_lom lom) smp 0e+00 ∆ od550ae 0e+00 -4e-02 -2e-01 -1.4e+00 -01 -6e-02 -1.5e+00 -4e-0 20002001200220032004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year load load of so4 - NH-sea of bc - NH-sea -2e-01 loadso4 (kg m<sup>-2</sup>)-4e-01 loadbc (kg m 1e-01 -6e-01 0e+00-1e-01 -8e-01 -2e-01 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year