global: absolute difference surface flux of SO2 – shp–10p–red surface flux of BC – shp–10p–red surface concentration of BC – shp–10p–red surface concentration surface concentration of SO4 - shp-10p-red of SO2 - shp-10p-red 1.0e-19 -5.0e-13 $\mathrm{emibc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$ nmrbc (kg kg-1) əmiso $2 (kg m^{-2} s^-$ 6.3e-20 so2 (kg kg – 1) nmrso4 (kg kg 1 0e-12 0e+00 -9.7e-21 _1 5e_12 -4 6e-20 -5 8e-14 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year Year upwelling longwave flux at TOA – shp–10p–red upwelling shortwave flux at TOA – shp–10p–red upwelling clear-sky longwav flux at TOA - shp-10p-red incident shortwave flux at TOA – shp–10p–red net radiative flux at TOA - shp-10p-red 5 0e=02 -lut + rsut $(W m^{-2})$ rlutes (W m-2) 0.0e + 00rsut (Wm-2)rlut (Wm-2)rsdt (Wm-2)1e-02 2e-02 0e+00 -2.5e-02 0.0e + 0.00e+00 -2e-02 -2 5e-02 -2e-02 -7.5e-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 upwelling clear-sky shortwa clear-sky net radiative implied cloud response dry deposition rate wet deposition rate flux at TOA - shp-10p-re flux at TOA - shp-10p-re at TOA - shp-10p-red of BC - shp-10p-red of BC - shp-10p-red rsutcs (W m^{-2}) 5.0e-1 2e-02 lutcs + rsutcs (W m^{-2}) rsutcs (W m-2) 0.0e+00 drybc (kg m^{-2} s⁻¹ vetbc (kg m⁻² s⁻ -7.5e-030e+00 -5.0e-03 rlutcs – -1.0e-02 rsut – -1.5e-02 -1.2e-02 rt H -6.8e-1 _8 7e_1 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 SO4 – shp–10p–red wet deposition rate of SO4 – shp–10p–red total deposition rate of BC – shp–10p–red dry deposition rate of SO2 – shp–10p–red wet deposition rate of SO2 – shp–10p–red 5.7e-1 -3.9e-14 -3.6e-18 $\mathrm{drybc} + \mathrm{wetbc} \, (\mathrm{kg} \, \mathrm{m}^{-2} \, \mathrm{s}^{-1})$ -3 0e-14 wetso2 (kg $\mathrm{m}^{-2} \mathrm{s}^{-1}$ dryso2 (kg m $^{-2}$ s $^{-1}$ 3.1e-17 dryso4 (kg m^{-2} s⁻ wetso4 (kg m⁻² 4.0e-18 -4.0e-14 -5.9e-18 -6.2e-15 -2.3e -9.8e-15 -4.2e-1 -8.2e-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 dryso2 + wetso2)/2 + (dryso4 + wetso4)/3Ice water path - shp-10p-Dimethyl sulphide (DMS) mole fraction total deposition rate cloud cover ambient aerosol optical of S - shp-10p-red percentage - shp-10p-red thickness at 550nm - shp-10p-red 1e-02 expression cltc (%) clivi (kg m^{-2}) _lom lom) smp $(kg m^{-2} s^{-1})$ 0e+00 0e+00 0e+00 -3.2e-14 -1e-02 20002001200220032004 2002 2003 2004 2002 2003 2004 2002 2003 2004 2000 2001 2000 2001 2000 2001 Year Year Year Year Year load load of so4 - shp-10p-red of bc - shp-10p-red -1 0e-08 $\log dso4 ~(kg~m^{-2})$ oadbc (kg m -1.5e-08 -2.0e-08 -2.5e-08 -4e-11 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year