## global: absolute difference surface concentration of BC – shp–atl–shift surface flux of BC – shp–atl–shift surface flux surface concentration surface concentration of SO2 - shp-atl-shift of SO4 - shp-atl-shift of SO2 - shp-atl-shift 5e-03 1.5e-01 4e\_01 4e-03 1e-05 1.0e-01 3e-03 5.0e-02 2e-03 2e-01 0.0e+00 1e-03 1e-01 -5.0e-02 0e+00 -1e-05 0e+00 2000 2001 2002 2003 2004 2002 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year upwelling longwave flux at TOA – shp-atl-shift upwelling shortwave flux at TOA – shp–atl–shift upwelling clear-sky longwave flux at TOA - shp-atl-shift net radiative flux at TOA – shp–atl–shift incident shortwave flux at TOA - shp-atl-shift 5 0e-02 8e-03 0e+00 -1e-02 4e-03 2e-03 -2e-02 0.0e + 0.0e +Ħ 0e+00 -3e-02 -4e-02 -2 5e-02 0e+00 -4e-02 -4e-03 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 upwelling clear-sky shortway implied cloud response dry deposition rate wet deposition rate clear-sky net radiative flux at TOA - shp-atl-shift flux at TOA - shp-atl-shift at TOA - shp-atl-shift of BC - shp-atl-shift of BC - shp-atl-shift rsutcs) 2e-02 1e-02 2e-02 0e+00 ∆ rlutcs + rsutcs 1e-02 0e+00 rlutcs -0e+00 △ wetbc 0e+00 -2e-02rsut -4e-02 -2e-02 ₹ -2e-02 -6e 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–atl–shift total deposition rate of BC – shp-atl-shift dry deposition rate of SO2 – shp-atl-shift wet deposition rate of SO2 – shp-atl-shift wet deposition rate of SO4 – shp-atl-shift -1.5e-02 2e-01 2e-02 0.0e+00 drybc + wetbc -2.0e-02 1e-01 ∆ dryso2 wetso2 ∆ dryso4 0e+00 -2.5e-02 -2 5e-02 0e+00-2e-02-5.0e-02 -3.0e-02 -1e-01 -7 5e-02 -4e-022000 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 - shp-atl-shimethyl sulphide (DMS) mole fraction total deposition rate cloud cover ambient aerosol optical thickness at 550nm - shp-atl-shift of S - shp-atl-shift percentage - shp-atl-shift 3e-02 2e-02 1e-01 0e+00 clivi (kg m<sup>-2</sup>) \_lom lom) smb 당 0e+00 0e+00 ∆ od550aer 0e+00 -3e-02expression -1e-01 -2e-02 -6e-02 -2e-0-4e-02 -9e-02 20002001200220032004 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year Year load load of so4 shp-atl-shift of bc - shp-atl-shift loadso4 (kg m<sup>-2</sup>) loadbc (kg m<sup>-2</sup>) 0e+00 1e-01 -1e-01 -2e-01 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year