NH-atlantic: absolute difference surface flux of SO2 – shp–atl–shift surface flux of BC – shp–atl–shift surface concentration of BC – shp-atl-shift surface concentration surface concentration of SO4 - shp-atl-shift of SO2 - shp-atl-shift 9.6e-13 $\mathrm{emibc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$ emiso2 (kg $\mathrm{m}^{-2}\,\mathrm{s}^{-1}$ nmrbc (kg kg – 1) 3.4e-21 so2 (kg kg – 1) mmrso4 (kg kg 8.1e-22 0e+00 6e-1 8.8e-13 -1.8e-21 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 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 net radiative flux at TOA – shp-atl-shift upwelling clear-sky longwa flux at TOA - shp-atl-shi incident shortwave flux at TOA – shp-atl-shift 5 0e=02 1e-01 1.5e-01 5.0e-02 $rsut(Wm^{-2})$ lutcs (Wm-2)rlut (Wm-2)rsut (Wm-2)2e-01 rsdt (Wm-2)0e+00 2.5e-02 0.0e + 0.01e-01 1.0e tht+ 7.5e-02 -2 5e-02 0e+00 5.0e-02 -2e-01 -2 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 shortwav clear-sky net radiative implied cloud response dry deposition rate wet deposition rate 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 rlutcs - rsutcs (W m^{-2}) 1.6e-17 1.5e-15 8e-02 lutcs + rsutcs (W m⁻²) rsutcs (W m-2) 8e-02 1.0e-15 drybc (kg $m^{-2} s^{-1}$ wetbc (kg m⁻² s⁻ 5e-02 6e-02 6e-02 5e-02 0e+00 4e-02 rsut – 8.6e-17 4e-02 -5e-02 rt H _2 9e_16 -3.9e-16 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year total deposition rate of BC - shp-atl-shift dry deposition rate of SO2 – shp-atl-shift wet deposition rate of SO2 – shp-atl-shift dry deposition rate of SO4 – shp-atl-shift wet deposition rate of SO4 – shp-atl-shift 1.4e-15 $\mathrm{drybc} + \mathrm{wetbc} \, (\mathrm{kg} \, \mathrm{m}^{-2} \, \mathrm{s}^{-1})$ 6.5e-13 5.5e-13 8.7e-16 dryso2 (kg m⁻² s⁻ wetso2 (kg m⁻² s⁻ dryso4 (kg m⁻² s^{-′} 1.0e-13 wetso4 (kg m⁻² 5.0e 3.5e-16 6.7e-17 6.2e-13 8.0e-14 4.5e-13 6 0e-14 6.2e 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 dryso2 + wetso2)/2 + (dryso4 + wetso4)/3Ice water path - shp-atl-spimethyl 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 2e-02 5e-04 clivi (kg m⁻²) _lom lom) smb $(kg m^{-2} s^{-1})$ expression cltc 4.7e-13 od550aer 0e+00 0e+00 4.6e-13 -2e-02 -5e-04 0e+00 20002001200220032004 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year Year load load - shp-atl-shift of bc - shp-atl-shift 2e-11 oadso4 $(kg m^{-2})$ loadbc (kg m⁻² 0e+00 1.5e-07 1.0e-07 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year