shp-atl-shift-1950: absolute difference surface flux of BC – NH–atlantic surface flux of SO2 – NH–atlantic surface concentration surface concentration of SO4 – NH–atlantic surface concentration of SO2 – NH-atlantic 2 56-20 4.6e-13 mmrso4 (kg kg – 1) nmrbc (kg kg-1) emiso2 (kg m⁻² s⁻ 1.6e-20 so2 (kg kg – 1) 0e+00 8.3e-2 1.3e-22 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 2002 2003 2004 Year Year Year Year Year upwelling longwave flux at TOA – NH–atlantic upwelling shortwave flux at TOA – NH–atlantic net radiative flux at TOA – NH-atlantic upwelling clear–sky longwa flux at TOA – NH–atlanti incident shortwave flux at TOA – NH–atlantic 2e-01 $rsut (W m^{-2})$ 00+00 rsut (W m-2) rsdt (Wm-2)rlutcs (W m-0.0e+00 -1e-01 5.0e-02 -2 5e-02 0e+00 0e+00 -2e-01 0.0e+00 2000 2001 2002 2003 2004 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year Year upwelling clear-sky shortway flux at TOA - NH-atlantic clear-sky net radiative implied cloud response dry deposition rate of BC – NH-atlantic wet deposition rate flux at TOA - NH-atlantic m^{-2} at TOA – NH–atlantic of BC – NH–atlantic 2 0e-15 rsutcs (W rlutcs + rsutcs (W m⁻²) 1.5e-01 vetbc (kg m⁻² s^{-′} drybc (kg m⁻² s⁻ 2e-02 2e-02 0e+00 5.0e-02 0e+00 0.0e+00 -2e-02 rsut 2000 2001 2002 2003 2004 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year Year total deposition rate of BC - NH-atlantic dry deposition rate of SO2 – NH–atlantic wet deposition rate of SO2 – NH-atlantic dry deposition rate of SO4 – NH-atlantic wet deposition rate of SO4 – NH-atlantic 2 0e-15 8e-04 3.0e-13 $\rm wetso2~(kg~m^{-2}~s^{-1}$ dryso4 (kg m⁻² s⁻¹) wetso4 $(kg m^{-2} s^{-1}$ dryso2 (kg m $^{-2}$ s $^{-1}$ 1.3e-15 4e-04 5.7e-16 -1.4e-16 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 Ice water path – NH-atlan@imethyl sulphide (DMS) mole fraction total deposition rate cloud cover ambient aerosol optical of S – NH–atlantic thickness at 550nm – NH–atla percentage - NH-atlantic 1e-13 2e-02 dms (mol mol⁻ clivi (kg m⁻²) expression cltc 0e+00 0e+00 2e-04 -4e-04 -4e-02 20002001200220032004 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 SO4 lifetime -SO₂ lifetime load load load of so2 NH-atlantic of so4 - NH-atlantic of bc - NH-atlantic - NH-atlantic - NH-atlantic wetso4) (days 6e-08 loadso2/emiso2 (days) loadso2 (kg m⁻²) oadbc (kg m⁻²) 4e-08 0e+00 (dryso4 -1e-08 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2001 2002 2003 2004 2000 2001 2002 2003

 $\mathrm{emibc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$

rlut (Wm-2)

rsutcs (W m-2)

 $drybc + wetbc (kg m^{-2} s^{-1})$

dyso2 + wetso2)/2 + (dryso4 + wetso4)/3

loadso4 (kg m⁻²)

Year

 $(kg m^{-2} s^{-1})$



Year

Year

Year

Year