## shp-atl-shift: absolute difference surface concentration of BC – NH–indian surface flux surface flux surface concentration surface concentration of BC - NH-indian of SO2 - NH-indian of SO4 - NH-indian of SO2 - NH-indian 1e-02 2.5e-01 1e-01 ∆ emiso2 -2e-01 ∆ emibc 0e+00 0.0e + 0.000+00 -1e-01 -4e-06-4e-01 -2e-01 -1e-02 -5.0e-01 -6e-06 -5e-01 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 – NH–indian upwelling shortwave flux at TOA – NH–indian incident shortwave flux at TOA – NH–indian upwelling clear-sky longwav flux at TOA - NH-indian net radiative flux at TOA – NH-indian 5.0e-02 2.0e-01 1e-01 1e-01 4e-02 00+00 1.5e-01 3e-02 rsut 0e+00 -1e-02e-02 0.0e + 0.0e +ŧ -2e-0 -1e-01 1e-02 5.0e-02 -3e-01 -2 5e-02 -2e-01 0e+00-4e-0 0.0e+00 -1e-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 shortway clear-sky net radiative implied cloud response dry deposition rate wet deposition rate flux at TOA - NH-indian flux at TÓA - NH-indian at TOA - NH-indian of BC - NH-indian of BC - NH-indian rsutcs) 1.0e-01 2e-01 5.0e-02 rlutcs -1e-01 rsu ∆ rsutcs 0e+00 △ drybc 0.0e+000e+00 -5 0e-02 rsut -01 -2e-01 -1e-01 -2e-01 -1.0e-01 rlut + -3e-01 -1.5e-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–indian dry deposition rate of SO2 – NH–indian wet deposition rate of SO2 – NH–indian dry deposition rate of SO4 – NH–indian wet deposition rate of SO4 – NH–indian 0.0e+00 1e-01 2e-01 0.0e+00 drybc + wetbc -3.0e-02 0e+00 ∆ wetso2 wetso4 0e+00 0e+00 -1e-01 -6.0e-02 -2e-01 -5e-01 -5.0e-01 -4e-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 $\frac{dryso2 + wetso2}{2 + (dryso4 + wetso4)/3}$ Ice water path - NH-indiar Dimethyl sulphide (DMS) mole fraction total deposition rate cloud cover ambient aerosol optical of S - NH-indian percentage - NH-indian thickness at 550nm - NH-indian 2.5e-02 1e+002e+00 2e-01 8 0.0e+00 clivi (kg $m^{-2}$ ) lom lom) smb cltc 0e+00 0e+001e+00 ∆ od550ae -2.5e-02 expression -2e-01 -5 0e-02 -1e+000e+00 -4e-01 -7.5e-02 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-indian of bc - NH-indian 4e-01 loadso4 (kg m<sup>-2</sup>) 5e-01 loadbc (kg m 2e-01 0e+00 0e+00 -2e-01 -5e-01 -4e-01 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year