## shp-60p-red-1950: absolute difference surface flux of SO2 – indian surface flux of BC – indian surface concentration surface concentration of SO4 – indian surface concentration of SO2 – indian 6.1e-20 mmrso4 (kg kg – 1) emibc $(kg m^{-2} s^{-1})$ nmrbc (kg kg-1) emiso2 (kg $m^{-2}$ s<sup>-</sup> 3 96-20 so2 (kg kg – 1) 1.6e-20 -6.1e-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 – indian upwelling shortwave flux at TOA – indian upwelling clear-sky longwav flux at TOA – indian net radiative flux incident shortwave flux at TOA – indian at TOA – indian rlut + rsut $(W m^{-2})$ 0.0e + 0.0rlutcs (Wm-2)rlut (Wm-2)rsut (W m-2) 4e+00 (W m--1e+00-2e+00 2e+00 1e+00 sdt ( -3e+00 0e+00 -1.5e-062000 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 shortwar flux at TOA – indian clear-sky net radiative flux at TOA – indian implied cloud response dry deposition rate of BC – indian wet deposition rate of BC – indian rsutcs $(W m^{-2})$ at TOA - indian 2 0e-15 2.0e+00 1.5e+00 $m^{-2}$ wetbc (kg $m^{-2} s^{-1}$ ) 1.5e+00 drybc (kg m<sup>-2</sup> s<sup>-</sup> rsutcs (W rsutcs (W m-8.0e-14 1.0e+00 1.0e+00 1.0e+00 rlutcs 5.0e-01 4.0e-14 5.0e-01 rsut 0.0e+00 0.0e+00 0.0e+00 r H H 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year total deposition rate of BC – indian dry deposition rate of SO2 – indian wet deposition rate of SO2 – indian dry deposition rate of SO4 – indian wet deposition rate of SO4 – indian 2.0e-11 drybc + wetbc (kg m<sup>-2</sup> s<sup>-1</sup>) 0.0e+00 wetso2 (kg $m^{-2}$ s<sup>-1</sup>. wetso4 $(kg m^{-2} s^{-1}$ dryso2 (kg m $^{-2}$ s $^{-1}$ -1.0e-13 dryso4 (kg m $^{-2}$ s $^{-1}$ 1.5e-11 6e-14 -5.0e-04 3e-14 5 0e-12 0e+00 -1.0e-032000 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 dyso2 + wetso2)/2 + (dyso4 + wetso4)/3cloud cover total deposition rate of S – indian Ice water path - indian Dimethyl sulphide (DMS) mole fractic ambient aerosol optical percentage - indian thickness at 550nm 6e-02 1e-03 dms (mol mol<sup>-</sup> clivi (kg m<sup>-2</sup>) $(kg m^{-2} s^{-1})$ expression cltc 4e-02 0e+00 0e+00 -2e-02 -4e-04 -5e-04 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 20002001200220032004 2000 2001 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year Year SO4 lifetime SO<sub>2</sub> lifetime load load load of so2 of so4 - indian of bc - indian - indian indian - indian wetso4) (days loadso2/emiso2 (days) loadso4 (kg m<sup>-2</sup>) loadso2 (kg m<sup>-2</sup>) loadbc (kg m<sup>-2</sup>) 2e-09 -5e-08 (dryso4 + 0e+00 -7e-08 -2 5e-08 -9e-08 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2001 2002 2003 2004 2000 2001 2002 2003 Year Year Year Year Year CAM-ATRAS F3SM GISS modelE

CESM1

**GEOS** 

NorESM2