## so2-at-height: percent difference surface flux surface flux surface concentration surface concentration of BC - NH-indian of SO2 - NH-indian of BC - NH-indian of SO4 - NH-indian of SO2 - NH-indian 2e+01 2 0e+01 4e+01 56-06 1.5e+01 ∆ emibc so2 0e+00 3e+01 0e+00 0e+00 2e+0 -2e+01 5.0e+00 -5e-01 -4e+02000 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 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 4e-07 4e-01 1e+00 2e-07 rsut 5e-02 2e-01 ∆ rlut + 0e+00 0e+00 -1e+00 -2e-07 -2e-01 2002 2003 2004 2002 2003 2004 2002 2003 2004 2002 2003 2004 2002 2003 2004 2000 2001 2000 2000 2001 2000 2001 Year Year Year Year Year clear-sky net radiative flux at TOA - NH-indian upwelling clear-sky shortwave flux at TOA - NH-indian implied cloud response dry deposition rate wet deposition rate at TOA - NH-indian of BC - NH-indian of BC - NH-indian rsutcs) 0e+00 3e+00 rlutcs -2e+00 2e+00 rlutcs + rsut 0e+00 -2e+001e+00 1e+00 -1e+00 0e+00 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 dry deposition rate of SO2 – NH–indian wet deposition rate of SO2 – NH–indian dry deposition rate of SO4 – NH–indian total deposition rate of BC – NH–indian wet deposition rate of SO4 – NH–indian 2e+01 4e+01 3e+00 30+01 50+01 ∆ drybc + wetbc 2e+00 3e+01 ∆ dryso2 wetso4 1e+00 3e+0 0e+00 0e+00 -1e+0010+01 -2e+002002 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 $\frac{1}{3} dryso2 + wetso2)/2 + \frac{1}{3} dryso4 + wetso4)/3$ Year Year total deposition rate ambient aerosol optical total cloud cover - NH-india convective cloud cover - NH-ind surface cloud cover - NH-ind of S - NH-indian thickness at 550nm - NH-inc 0e+001e+02 ∆ clt -1e+01 2e+35 5e+01 -1e+00 -2e+01 0e+00 2002 2003 2004 20002001200220032004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year ice water path - NH-indian surface concentration column mass burden column mass burden column mass burden of DMS - NH-indian of BC - NH-indian of SO2 - NH-indian of SO4 - NH-indian 5e+01 2e+00 5e+01 4e+0 5.0e-01 0e+00 ∆ loadso ∠ ∆ dms 30+01 0.0e + 0.0e +3e+01 -2e+00 2e+01 -5.0e-0 1e+01 -1.0e+00 -4e+001e+01 -5e-01 -1.5e+00 0e+00 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 CAM5 E3SM **GISS** OsloCTM3 CESM1 **GEOS** MIROC **UKESM** CESM2 GFDL NorESM2