so2-at-height: absolute difference surface flux surface flux surface concentration surface concentration of BC - NH-indian of SO2 - NH-indian of SO4 - NH-indian of SO2 - NH-indian 2.7e-20 Δ emibc (kg m⁻² s⁻¹) Δ mmrbc (kg kg – 1) 0.0e+00 Δ emiso2 (kg m $^{-2}$ s $^{-}$ $\Delta so2 (kg kg - 1)$ (kg kg – 1e-12 -2 5e-10 -1.7e-2 ∆ mmrso4 2e-13 -5.0e-10 -1 6e-20 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 upwelling longwave flux at TOA – NH-indian upwelling shortwave flux at TOA – NH–indian upwelling clear-sky longwav flux at TOA - NH-indian net radiative flux incident shortwave flux at TOA - NH-indian at TOA - NH-indian 5e-01 0e+00 Δ rlut + rsut (W m⁻²) 1.0e + 0.01e-01 Δ rlutcs (W m-2) Δ rlut (W m – 2) 0e+00 Ę rsdt (W mrsut (W -5.0e-01 -1e+00 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 shortwa flux at TOA – NH–indian clear-sky net radiative flux at TOA - NH-indian dry deposition rate of BC – NH–indian $\rm rsutcs \ (W\ m^{-2})$ implied cloud response wet deposition rate at TOA - NH-indian of BC - NH-indian 3.4e-15 Ē 0.0e + 0.0 Δ rsutcs (W m – 2) drybc (kg m^{-2} s⁻¹ Δ wetbc (kg m $^{-2}$ s $^{-1}$ rsutcs (W 2e-01 rlutcs – 0e+00 _1 0e+00 -2e-0 rsut rlut + 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 total deposition rate of BC – NH–indian dry deposition rate of SO2 – NH–indian dry deposition rate of SO4 – NH–indian wet deposition rate of SO4 – NH–indian wet deposition rate of SO2 – NH–indian Δ drybc + wetbc (kg m⁻² s⁻¹) Δ dryso2 (kg m $^{-2}$ s $^{-1}$ Δ wetso2 (kg m⁻² s⁻ ∆ dryso4 (kg m⁻² s⁻ 1e-14 $_{\Delta}$ wetso4 (kg m $^{-2}$ 0e+00 2e-13 0e+00 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Yea Year Year dryso2 + wetso2)/2 + (dryso4 + wetso4)/3total deposition rate ambient aerosol optical total cloud cover - NH-india convective cloud cover - NH-in of S - NH-indian thickness at 550nm - NH-in ∆ cltc (percent) ∆ clt (percent) ∆ cl (percent) 0.0e+00 $(kg m^{-2} s^{-1})$ 1e+35 -6e-02 0e+00 20002001200220032004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 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 1.5e-12 Δ loadso4 (kg m⁻²) Δ loadso2 (kg m $^{-2}$) $\Delta \operatorname{clivi} \left(\operatorname{kg m}^{-2} \right)$ $loadbc (kg m^{-2})$ Δ dms (kg kg –1) 1.0e-12 0e+00 0e+00 2e-06 5.0e-5.0e-07 -2e-09 -1e-03 2.5e-07 -2e-03 -6e-09 2000 2001 2002 2003 2004

Year

