Reference - absolute NH-indian averages surface flux of BC – NH–indian surface concentration of BC – NH–indian surface concentration of SO4 – NH–indian surface concentration of SO2 – NH–indian surface flux of SO2 - $\mathrm{emibc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$ emiso2 $(kg m^{-2} s^{-1})$ mmrbc (kg kg⁻¹) nmrso4 (kg kg¯ so2 (kg kg⁻¹ 3e-09 1.0e-09 2e-13 2e-09 1e-09 2002 2001 2002 2003 2001 2002 2003 2002 2003 2001 2003 2001 2002 2003 Year Year Year Year Year shortwave flux at TOA - NH-indian longwave flux at TOA – NH–indian net radiative flux at TOA –NH–indian incident shortwave flux at TOA – NH–indian clear-sky longwave flux at TOA - NH-indian -340 407 $rlut + rsut (W m^{-2})$ rlutcs $(W m^{-2})$ rlut $(W m^{-2})$ $rsut(Wm^{-2})$ $rsdt (W m^{-2})$ -250 -90 -345 405 -284 -100 -260 -350 -288 -270 401 2001 2003 2001 2003 2001 2002 2003 2001 2002 2003 2001 2003 Year Year Year Year Year dry deposition rate of BC – NH–indian clear-sky shortwave clear-sky net radiative implied cloud response wet deposition rate flux at TOA - NH-indian flux at TOA - NH-indian at TOA - NH-indian of BC - NH-indian rlut + rsut - rlutcs - rsutcs (W m-2 -40 -320 rlutcs + rsutcs (W m⁻²) $\mathrm{drybc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$ wetbc (kg m⁻² s⁻¹) rsutcs $(W m^{-2})$ -42 -325 -44 -330 -30 5.0e-13 -46 -335 2003 2003 2003 2001 2003 2001 2001 2003 2001 2001 2002 Year Year Year Year Year total deposition rate of BC – NH–indian dry deposition rate of SO4 – NH–indian dry deposition rate wet deposition rate wet deposition rate of SO2 - NH-indian of SO2 - NH-indian of SO4 - NH-indian $drybc + wetbc (kg m^{-2} s^{-1})$ $dryso2 (kg m^{-2} s^{-1})$ wetso2 $(kg m^{-2} s^{-1})$ wetso4 $(kg m^{-2} s^{-1})$ dryso4 (kg m⁻² s⁻¹ 2e-12 3e-12 2001 2002 2003 2004 2001 2002 2003 2001 2002 2003 2004 2001 2002 2003 2001 2002 2003 Year total deposition rate of S – NH–indian ambient aerosol optical convective cloud cover total cloud cover (dryso2 + wetso2)/2 + (dryso4 + wetso4)/3thickness at 550nm - NH-india percentage - NH-indian percentage - NH-indian 0.30 40 $(kg m^{-2} s^{-1})$ 0.25 od550aer 60 clt (%) % cltc 20 50 0.15 0 2002 2002 2003 2004 2002 2003 2002 2003 2004 2003 2001 2001 2004 2001 2001 2004 Year Year Year Year

CFSM1

CESM2

F3SM

GEOS

GFDI

GISS

MIROC

NorESM2

OsloCTM3

UKESM