bc-no-season: absolute difference surface concentration of BC – NH–land surface flux of BC – NH–land surface flux of SO2 – NH–land surface concentration of SO4 – NH–land surface concentration of SO2 – NH–land 0e+00 $\mathrm{emibc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$ emiso2 $(kg m^{-2} s^{-1})$ mmrbc (kg kg⁻¹) mmrso4 (kg kg⁻¹ $m so2~(kg~kg^{-1}$ -5.0e-12 2.5e-15 _2e_09 5.0e-11 9.0e-17 3.6e-17 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year Year longwave flux at TOA -NH-land net radiative flux at TOA – NH–land incident shortwave flux at TOA – NH–land clear-sky longwave flux at TOA - NH-land shortwave flux at TOA - NH-land 0.1 0.0 1.0 0.75 rlut + rsut $(W m^{-2})$ 2e-07 0.0 rlutcs (W m⁻²) rlut $(W m^{-2})$ $rsut(Wm^{-2})$ $rsdt (W m^{-2})$ 0.50 1e-07 -0.1 -0.2 0.25 0e+00 -0.2 -0.3 0.00 -0.3 2001 2003 2001 2003 2001 2003 2001 2003 2001 2003 Year Year Year Year Year dry deposition rate of BC – NH–land wet deposition rate of BC - NH-land clear-sky shortwave clear-sky net radiative implied cloud response flux at TOA - NH-land flux at TOA - NH-land at TOA - NH-land 4.7e-15 rlut + rsut – rlutcs – rsutcs $(W m^{-2})$ 0.0 rlutcs + rsutcs (W m^{-2}) 1.0e-15 wetbc (kg m^{-2} s⁻¹) $drybc (kg m^{-2} s^{-1})$ rsutcs (W m⁻²) 1.0 0.5 0.5 -0.2 0e+00 2003 2001 2002 2003 2001 2002 2003 2001 2003 2001 2002 2001 2002 2003 Year Year Year Year Year total deposition rate of BC – NH–land dry deposition rate of SO2 – NH–land dry deposition rate of SO4 – NH–land wet deposition rate of SO4 – NH–land wet deposition rate of SO2 - NH-land 5e-14 $drybc + wetbc (kg m^{-2} s^{-1})$ 4e-14 $dryso2 (kg m^{-2} s^{-1})$ wetso2 $(kg m^{-2} s^{-1})$ $dryso4 (kg m^{-2} s^{-1})$ wetso4 (kg $\mathrm{m}^{-2}\,\mathrm{s}^{-1}$ 3e-14 2e-14 0e+00 5.0e-14 0.0e+00 0e+00 0.0e + 0.02001 2002 2003 2004 2001 2002 2003 2001 2002 2003 2001 2002 2003 2004 2001 2002 2003 total deposition rate of S – NH–land ambient aerosol optical convective cloud cover total cloud cover (dryso2 + wetso2)/2 + (dryso4 + wetso4)/3thickness at 550nm - NH-lan percentage - NH-land 0.00 0.00 0.1 0.0 $(kg m^{-2} s^{-1})$ -0.05-0.05 % clt (%) cltc -0.10 -0.100e+002002 2003 2004 2003 2002 2003 2004 2002 2001 2001 2002 2004 2001 2001 2003 2004 Year Year Year Year

CESM1

CESM2

F3SM

GEOS

GFDI

GISS

MIROC

NorESM2

OsloCTM3

UKESM