so2-no-season: absolute difference surface flux of BC – SH–land surface flux of SO2 – SH–land surface concentration of BC – SH–land surface concentration of SO4 – SH–land surface concentration of SO2 – SH–land 1e-11 $\mathrm{emibc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$ emiso2 (kg $\mathrm{m}^{-2}\,\mathrm{s}^{-1}$) mmrso4 (kg kg⁻¹) mmrbc (kg kg⁻¹) 00+00 so2 (kg kg⁻¹ 2.6e-17 0e+00 0e+00 1.1e-17 -3.1e-18 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year Year longwave flux at TOA – SH–land net radiative flux at TOA – SH–land incident shortwave flux at TOA – SH–land clear-sky longwave flux at TOA - SH-land shortwave flux at TOA – SH–land 0.3 0.2 0.1 0.2 2e-07 0.1 0.03 rlut + rsut $(W m^{-2})$ rlutcs $(W m^{-2})$ rlut $(W m^{-2})$ $rsut (W m^{-2})$ $rsdt (W m^{-2})$ 0.1 0.0 0.0 0e+00 0.00 0.0 -0.1 -0.1 -0.03 -2e-07 -0.1 -0.2-0.06 2001 2002 2003 2001 2002 2003 2001 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year Year clear-sky net radiative flux at TOA - SH-land dry deposition rate of BC – SH–land wet deposition rate of BC – SH-land clear-sky shortwave implied cloud response flux at TÓA - SH-land at TOA - SH-land 0.025 8.0e-16 rlut + rsut - rlutcs - rsutcs (W m-2) 0.15 3.5e-15 0.05 0.10 rlutcs + rsutcs (W m^{-2}) 0.000 $drybc (kg m^{-2} s^{-1})$ 4.8e-16 wetbc $(kg m^{-2} s^{-1})$ 1.8e-15 $\rm rsutcs \ (W \ m^{-2})$ 0.05 0.00 -0.025 1.6e-16 0.00 -0.05 -0.05 -0.050-0.10 2001 2002 2003 2001 2002 2003 2001 2003 2001 2002 2003 2001 Year Year Year Year Year total deposition rate of BC – SH–land dry deposition rate of SO4 – SH–land wet deposition rate of SO4 – SH–land dry deposition rate wet deposition rate of SO2 - SH-land of SO2 - SH-land 3.8e-15 drybc + wetbc (kg m⁻² s⁻¹)0e+00 2.1e-15 $dryso2 (kg m^{-2} s^{-1})$ wetso2 $(kg m^{-2} s^{-1})$ dryso4 (kg m^{-2} s⁻¹) wetso4 $(kg m^{-2} s^{-1}$ 2e-14 1e-14 4.0e-16 0e+00 -1.3e-15 -3.0e-15 2001 2002 2003 2004 2001 2002 2003 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 Year Year Year Year total deposition rate of S – SH–land ambient aerosol optical convective cloud cover total cloud cover (dryso2 + wetso2)/2 + (dryso4 + wetso4)/3thickness at 550nm percentage - SH-land percentage - SH-land 2.0e-13 0.00 0.005 0.2 $(kg m^{-2} s^{-1})$ 0.000 -0.02 od550aer cltc -0.0050.0 5.0e-14 -0.04-0.010 0.0e+00 -0.2 -0.015 -0.062001 2002 2003 2004 2003 2002 2003 2002 2003 2002 2004 2001 2004 2001 2004 2001 Year Year Year Year CFSM1 F3SM **GFDI** MIROC OsloCTM3

CESM2

GEOS

GISS

NorESM2

UKESM