## so2-at-hgt: absolute difference surface flux of BC - s-land surface flux of SO2 - s-land surface concentration surface concentration of BC - s-land of SO4 - s-land 7.2e-19 4.4e-15 emiso2 (kg m-2 s-1) 4.3e-19 3.2e-15 emibc (kg m-2 s-1) mmrso4 (kg kg-1) mmrbc (kg kg-1) 1.5e-11 2e-13 1.5e-19 2.1e-15 1.0e-11 0e+00 5.0e-12 -1.3e-19 9.3e-16 0.0e+00-4.1e-19 -2.1e-16 2001 2003 2001 2003 2002 2001 2002 2001 2002 2003 Year Year Year Year upwelling longwave flux at TOA – s–land upwelling shortwave flux at TOA – s–land net radiative flux at TOA - s-land surface concentration of SO2 - s-land 0.15 0.10 0.10 rlut + rsut (W m-2) so2 (kg kg-1) rlut (W m-2) rsut (W m-2) 0.05 -3e-10 0.05 0.00 0.0 -4e-10-0.05 0.00 -5e-10 -0. -0.10-0.05 2001 2001 2001 2002 2001 2002 Year Year Year Year upwelling clear-sky longwave flux at TOA - s-land upwelling clear–sky shortwave flux at TOA – s–land clear-sky net radiative flux at TOA - s-land incident shortwave flux at TOA - s-land 0.02 0.06 0.050 0e+00 0.00 0.04 rsutcs (W m-2) rlutcs (W m-2) rsdt (W m-2) rlutcs + rsutcs (W 0.025 -1e-07 0.02 -0.02 0.000 -2e-07 -0.0250.00 -0.04 2004 2004 2001 2004 2001 2002 2003 2001 2002 2003 2004 2001 2002 2003 2002 2003 Year Year Year Year wet deposition rate of BC – s–land total deposition rate of BC – s–land dry deposition rate of SO2 – s–land dry deposition rate of BC - s-land 7.2e-16 3.0e-15 2.8e-15 -4e-13 drybc + wetbc (kg m-2 s-1) drybc (kg m-2 s-1) 4.5e-16 1.7e-15 dryso2 (kg m-2 s-1) wetbc (kg m-2 s-1) -6e-13 2.1e-16 1.9e-16 4.1e-16 -8.6e-16 -8e-13 -3.4e-16 -2.4e-15 -2.1e-15 2001 2004 2001 2003 2001 2003 2004 2003 2002 2003 2002 2002 2001 2002 Year Year Year Year (dryso2 + wetso2)/2 + (dryso4 + wetso4)/3 (kg m-2 s-1) wet deposition rate dry deposition rate wet deposition rate total deposition rate of SO4 - s-land of SO2 - s-land of SO4 - s-land of S - s-land 1.0e-12 1.5e-13 1e-14 wetso2 (kg m-2 s-1) dryso4 (kg m-2 s-1) -6.0e-14 wetso4 (kg m-2 s-1) 1.0e-13 0e+00 -9.0e-14 5.0e-13 5.0e-14 -1.2e-13 2.5e-13 0.0e+00 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 Year Year Year Year CESM1 E3SM MIROC NorESM2