so2-at-hgt: absolute difference surface flux of BC - global surface flux of SO2 - global surface concentration surface concentration of BC - global of SO4 - global 8.0e-20 4.7e-15 2e-13 5.0e-20 emiso2 (kg m-2 s-1) 3.4e-15 emibc (kg m-2 s-1) mmrbc (kg kg-1) mmrso4 (kg kg-1) 1e-13 1.9e-20 2.2e-15 0e+00 5.0e-1 -1.2e-20 1.0e-15 2.5e-11 -4.2e-20 -2.2e-16 -2e-13 2001 2003 2001 2001 2002 2003 2001 2003 2002 2003 Year Year Year Year upwelling longwave flux at TOA – global surface concentration upwelling shortwave flux net radiative flux at TOA - global of SO2 - global at TOA - global 0.3 0.06 0.3 rlut + rsut (W m-2) 0.03 0.2 rsut (W m-2) so2 (kg kg-1) rlut (W m-2) -4e-10 0.00 -5e-10 0.1 -0.03 -6e-10 0.0 0.0 2001 2002 2003 2001 2002 2003 2001 2002 2001 2002 Year Year Year Year upwelling clear-sky longwave flux at TOA - global upwelling clear-sky shortwave flux at TOA - global clear-sky net radiative flux at TOA - global incident shortwave flux at TOA - global 8e-08 0.01 0.12 m-20.09 4e-08 0.00 rsutcs (W m-2) rlutcs (W m-2) rsdt (W m-2) rlutcs + rsutcs (W 0.08 0.06 0e+00 -0.01 0.04 0.03 -4e-08 -0.02 0.00 0.00 2001 2004 2004 2004 2001 2004 2002 2003 2001 2002 2003 2001 2002 2003 2002 2003 Year Year Year Year total deposition rate of BC – global dry deposition rate of SO2 – global dry deposition rate wet deposition rate of BC – global of BC - global 1.0e-15 2.5e-16 4.0e-17 -6e-13 drybc + wetbc (kg m-2 s-1) drybc (kg m-2 s-1) dryso2 (kg m-2 s-1) wetbc (kg m-2 s-1) -8e-13 5.2e-16 -5.0e-16 -1.3e-16 -9e-13 2.6e-16 -3.1e-16 2.6e-18 -1.0e-15 -5.0e-16 2001 2003 2001 2003 2001 2003 2003 2002 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 SO2 – global of SO4 - global of SO4 - global of S - global 1.2e-13 2.0e-12 4e-13 wetso2 (kg m-2 s-1) dryso4 (kg m-2 s-1) wetso4 (kg m-2 s-1) 1.0e-13 1.5e-12 1.5e-13 3e-13 7.5e-14 1.0e-13 2e-13 1.0e-12 5.0e-14 5.0e-14 1e-13 5 0e-13 2.5e-14 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