so2-at-hgt: absolute difference surface flux of BC - n-land surface flux of SO2 - n-land surface concentration surface concentration of BC - n-land of SO4 - n-land 2.9e-19 1.7e-14 emiso2 (kg m-2 s-1) 1.8e-19 1.3e-14 emibc (kg m-2 s-1) 4e-13 1.5e-10 mmrbc (kg kg-1) mmrso4 (kg kg-1) 7.1e-20 8.1e-15 0e+00 1.0e-10 -3.9e-20 3.6e-15 5.0e-11 -8e-13 -1.5e-19 2001 2003 2003 2001 2002 2001 2002 2003 2001 2002 Year Year Year Year upwelling longwave flux at TOA – n–land upwelling shortwave flux at TOA – n–land surface concentration net radiative flux at TOA - n-land of SO2 - n-land 0.5 -1.0e-09 0.4 0.4 m-2) -1.5e-09 0.3 so2 (kg kg-1) 0.3 (M m-2) rlut (W m-2) rlut + rsut (W 0.3 0.1 -2.0e-09 0.2 0.0 0.1 -2.5e-09 0.1 0.0 2001 2002 2003 2001 2001 2002 2001 2002 Year Year Year Year upwelling clear–sky longwave flux at TOA – n–land upwelling clear–sky shortwave flux at TOA – n–land clear-sky net radiative flux at TOA - n-land incident shortwave flux at TOA - n-land 1.2e-07 0.3 -0.020.3 rlutcs + rsutcs (W m-2) 8.0e-08 rsutcs (W m-2) rlutcs (W m-2) rsdt (W m-2) 0.2 0.2 -0.044.0e-08 0.1 0.1 -0.06 0.0e+00 0.0 0.0 2001 2004 2004 2004 2004 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year dry deposition rate of BC – n–land wet deposition rate of BC – n–land total deposition rate of BC – n–land dry deposition rate of SO2 - n-land 1.5e-16 4.6e-15 -2.0e-16 -2.5e-12 drybc + wetbc (kg m-2 s-1) drybc (kg m-2 s-1) -6.2e-16 dryso2 (kg m-2 s-1) wetbc (kg m-2 s-1) -3.0e-12 2.3e-15 -3.5e-15 -1.4e-15 -4 0e-12 -2.2e-15 -4.5e-12 3.6e-17 -6.8e-15 -3.0e-15 2003 2001 2003 2001 2003 2003 2001 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 - n-land of SO4 - n-land of SO4 - n-land of S - n-land wetso2 (kg m-2 s-1) 0e+00 dryso4 (kg m-2 s-1) wetso4 (kg m-2 s-1) 2e-13 -2e-13 5e-13 2e-12 -4e-13 0e+00 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 Year Year Year Year CESM1 E3SM MIROC NorESM2