so2-at-hgt: absolute difference surface flux of BC - n-sea surface flux of SO2 - n-sea surface concentration of SO4 – n–sea surface concentration of BC - n-sea 5.2e-21 2.7e-15 1e-13 emiso2 (kg m-2 s-1) 3.7e-21 2.0e-15 emibc (kg m-2 s-1) mmrbc (kg kg-1) mmrso4 (kg kg-1) 0e+00 2.1e-21 1.3e-15 5.6e-22 5.7e-16 -1.0e-21 -1.3e-16 2001 2003 2001 2003 2001 2001 2002 2003 2002 2002 2002 2003 Year Year Year Year upwelling longwave flux at TOA – n–sea upwelling shortwave flux at TOA – n–sea net radiative flux at TOA - n-sea surface concentration of SO2 - n-sea 0.5 0.10 0.6 rlut + rsut (W m-2) 0.4 -5.0e-11 0.05 so2 (kg kg-1) rsut (W m–2) rlut (W m-2) 0.3 -1.0e-10 0.00 0.2 -0.05 -1.5e-10 0.1 0.0 -0.10 2001 2003 2001 2002 2003 2001 2002 2001 2002 Year Year Year Year upwelling clear-sky longwave flux at TOA - n-sea upwelling clear–sky shortwave flux at TOA – n–sea clear-sky net radiative flux at TOA - n-sea incident shortwave flux at TOA - n-sea 0.02 0.20 0.15 rlutcs + rsutcs (W m-2) 5.0e-08 rsutcs (W m-2) 01.0 50.0 0.15 rlutcs (W m-2) rsdt (W m-2) 0.00 0.0e+00 0.10 -5.0e-08 -0.02 0.05 0.05 -1.0e-07 -1.5e-07 0.00 2004 2004 2003 2004 2004 2001 2002 2003 2001 2002 2003 2001 2002 2001 2002 2003 Year Year Year Year total deposition rate of BC – n–sea wet deposition rate of BC – n–sea dry deposition rate dry deposition rate of BC - n-sea of SO2 - n-sea 3.0e-16 2.0e-15 2.0e-15 drybc + wetbc (kg m-2 s-1) 0e+00 dryso2 (kg m-2 s-1) drybc (kg m-2 s-1) 1.7e-17 wetbc (kg m-2 s-1) 1.3e-15 -1e-13 7.7e-16 -2.7e-16 6.5e-16 -2e-13 1.6e--3e-13 -8.3e-16 -4 6e-16 -6.6e-16 2001 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 - n-sea of SO2 - n-sea of SO4 - n-sea of S - n-sea dryso4 (kg m-2 s-1) wetso2 (kg m-2 s-1) wetso4 (kg m-2 s-1) 3e-13 5e-13 1.5e-13 1e-13 4.0e-13 5.0e-14 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 Year Year Year Year CESM1 E3SM MIROC NorESM2