so2-at-hgt: absolute difference surface flux of BC - sea surface flux of SO2 - sea surface concentration surface concentration of BC – sea of SO4 - sea 2.5e-21 1.3e-15 emiso2 (kg m-2 s-1) 4.9e-22 9.9e-16 emibc (kg m-2 s-1) mmrso4 (kg kg-1) mmrbc (kg kg-1) 0e+00 -1.6e-21 6.4e-16 -3.6e-2 2.9e-16 2e-11 -5.7e-21 -6.4e-17 2001 2003 2001 2002 2003 2001 2003 2002 2001 2002 2003 Year Year Year Year upwelling longwave flux at TOA – sea upwelling shortwave flux at TOA – sea net radiative flux at TOA - sea surface concentration of SO2 - sea 0.3 0.06 0.3 0.03 rlut + rsut (W m-2) 0.2 so2 (kg kg-1) 0.2 rsut (W m-2) rlut (W m-2) 0.00 -5.0e-1 0.1 0.1 -0.03 0.0 -7.5e-11 0.0 -0.06 -0.12001 2003 2001 2002 2001 2002 2001 2002 Year Year Year Year upwelling clear-sky longwave flux at TOA - sea upwelling clear–sky shortwave flux at TOA – sea clear-sky net radiative flux at TOA - sea incident shortwave flux at TOA - sea 0.01 rlutcs + rsutcs (W m-2) 0.075 0.075 5e-08 rsutcs (W m-2) rlutcs (W m-2) rsdt (W m-2) 0.00 0.050 0.050 0e+00 -0.01 0.025 0.025 -0.02 -5e-08 0.000 0.000 2004 2004 2003 2004 2004 2001 2002 2003 2001 2002 2003 2001 2002 2001 2002 2003 Year Year Year Year dry deposition rate of SO2 – sea wet deposition rate of BC – sea total deposition rate of BC – sea dry deposition rate of BC - sea 1.3e-16 5.3e-16 6.0e-16 drybc + wetbc (kg m-2 s-1) drybc (kg m-2 s-1) 7.6e-18 wetbc (kg m-2 s-1) dryso2 (kg m-2 s-1) -5.0e-14 2.0e-16 -1.1e-16 1.4e-16 4.9e-17 -3.6e-16 -1.9e-16 -2.4e-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 SO2 - sea of SO4 - sea of SO4 - sea of S - sea dryso4 (kg m-2 s-11 e-14 wetso2 (kg m-2 s-1) wetso4 (kg m-2 s-1) 1.5e-13 2.5e-13 1.0e-13 2.0e-13 2e-13 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 Year Year Year Year CESM1 E3SM MIROC NorESM2