so2-at-height: absolute difference surface flux surface concentration of BC – global surface flux surface concentration surface concentration of BC - global of SO2 - global of SO4 - global of SO2 - global 8.0e-20 4.7e-15 1.2e-10 2e-13 emiso2 (kg m-2 s-1) emibc (kg m-2 s-1) mmrbc (kg kg-1) mmrso4 (kg kg-1) 1e-13 so2 (kg kg-1) -4e-10 1.9e-20 2.2e-15 0e+00 6.0e-11 -5e-10 1.0e-15 -1e-13 3 Oe-11 -6e-10 -4.2e-20 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year Year upwelling shortwave flux at TOA – global upwelling longwave flux upwelling clear-sky longwave net radiative flux incident shortwave flux flux at TOA – global at TOA - global at TOA - global at TOA - global 0.06 0.3 0.01 0.03 rlut + rsut (W m-2) 4e-08 0.00 rlutcs (W m-2) 0.2 rsut (W m-2) rsdt (W m-2) 0.00 0e+00 -0.01 0.1 0.1 -0.03-4e-08-0.02 0.0 -0.062001 2003 2001 2002 2003 2001 2002 2003 2002 2003 2001 2003 Year Year Year Year Year upwelling clear-sky shortwave flux at TOA - global clear–sky net radiative flux at TOA – global dry deposition rate of BC – global wet deposition rate of BC – global total deposition rate of BC – global 1.0e-15 5.0e-17 2.5e-16 drybc + wetbc (kg m-2 s-1) 0.3 0.09 drybc (kg m-2 s-1) wetbc (kg m-2 s-1) rsutcs (W m-2) rlutcs + rsutcs (W 0.06 -5.0e-16 -1.3e-16 4.9e-16 0.03 0.1 0.0 -5.0e-2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year Year (dryso4 + wetso4)/3 (kg m-2 s-1) wet deposition rate of SO2 – global dry deposition rate of SO4 – global wet deposition rate of SO4 – global total deposition rate of S – global dry deposition rate of SO2 - global 3e-13 -6.0e-13 dryso2 (kg m-2 s-1) wetso2 (kg m-2 s-1) wetso4 (kg m-2 s-1) dryso4 (kg m-2 s-1) -9.0e-13 1.5e-13 1.0e-13 -1.2e-12 2e-13 (dryso2 + wetso2)/2 + 0.0e+00 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2001 2002 2003 Year Year Year Year Year ambient aerosol optical total cloud cover convective cloud cover thickness at 550nm - globa percentage - global percentage - global 6e-04 0.0100 0.050 4e-04 0.0075 0.025 8 2e-04 0.0050 0.000 ö 0e+00 0.0025 -0.025 -2e-04 0.0000 2002 2003 2002 2003 2001 2002 2003 Year Year Year CESM1 E3SM MIROC NorESM2 OsloCTM3