shp-20p-red: absolute difference surface flux of BC - global surface flux of SO2 - global surface concentration surface concentration of BC - global of SO4 - global 1.0e-16 -1.0e-13 -6.0e-12 -4.6e-16 emiso2 (kg m-2 s-1) emibc (kg m-2 s-1) mmrso4 (kg kg-1) mmrbc (kg kg-1) 0e+00 -8 0e-12 -1.0e-15 -1.1e-13 -1e-13 -1.0e-11 -1.6e-15 -1.2e-13 _2e_13 _3e_13 -2.1e-15 2000 2001 2002 2003 2000 2001 2002 2003 2000 2001 2002 2003 2000 2001 2002 2003 Year Year Year Year upwelling longwave flux at TOA – global upwelling shortwave flux at TOA – global net radiative flux at TOA - global surface concentration of SO2 - global 0.01 0.04 0.00 rlut + rsut (W m-2) 0.03 -5e-12 so2 (kg kg-1) -0.02 rlut (W m-2) rsut (W m-2) -0.01 0.02 -0.04 -6e-12 -0.02 0.01 -0.06 _7e_12 -0.03 0.00 -8e-12 -0.042000 2001 2002 2003 2000 2001 2002 2000 2002 2000 2001 2002 2003 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 0.050 0.015 0.005 0.000 rlutes + rsutes (W m-2) 0.025 0.000 rsutcs (W m-2) rlutcs (W m-2) rsdt (W m-2) 0.010 -0.005 0.000 -0.005 0.005 -0.010 -0.025 -0.010 -0.015 0.000 -0.050 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 Year Year Year Year dry deposition rate of SO2 – global dry deposition rate of BC – global total deposition rate of BC – global wet deposition rate of BC - global 1.3e-16 1.3e-16 1.0e-16 -7.4e-14drybc + wetbc (kg m-2 s-1) dryso2 (kg m–2 s–1) drybc (kg m-2 s-1) wetbc (kg m-2 s-1) -1.5e-16 -8.1e-16 -1.0e-15 -8.4e-14 -1.6e-15 -8.9e--4.2e-16 -2.1e-15 -9.4e-2000 2003 2003 2000 2001 2002 2003 2001 2002 2000 2001 2002 2000 2001 2002 2003 Year Year Year Year wet deposition rate dry deposition rate wet deposition rate total deposition rate of SO2 - global of SO4 – global of SO4 - global of S - global -5.3e-18 -6.9e-15 (dryso2 + wetso2)/2 + (dryso4 + wetso4)/3 (kg -6.0e-14 wetso2 (kg m-2 s-1) dryso4 (kg m-2 s-1) wetso4 (kg m-2 s-1) -7.3e-18 -9.4e-18 -1 2e-14 -6.4e-14 -6.6e-1 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year CESM1 GISS (all em) GISS (SO2)