## shp-atl-shift-1950: absolute difference surface flux of BC - sea surface flux of SO2 - sea surface concentration of BC – sea surface concentration of SO4 - sea 1.3e-21 0.0e + 004e-14 emiso2 (kg m-2 s-1) 2.1e-22 emibc (kg m-2 s-1) mmrbc (kg kg-1) mmrso4 (kg kg-1) 2e-14 -8.7e-22 -1.9e-2 -3.0e-21 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 – sea upwelling shortwave flux at TOA – sea net radiative flux at TOA - sea surface concentration of SO2 - sea 0.02 0.04 0.00 rlut + rsut (W m-2) 0.00 0.02 so2 (kg kg-1) -4e-13 -0.02rlut (W m-2) rsut (W m-2) 0.00 -0.02 -0.04 -0.02 -8e-13 -0.04 -0.06 2000 2001 2002 2003 2000 2001 2002 2000 2002 2003 2000 2001 2002 2003 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 0.050 0.010 0.000 0.025 0.005 0.005 -0.002 rlutcs (W m-2) rsdt (W m-2) rlutcs + rsutcs (W 0.000 0.000 -0.004 0.000 -0.025 -0.005 -0.006 -0.005 -0.050 2003 2000 2001 2002 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year dry deposition rate of SO2 – sea total deposition rate of BC – sea dry deposition rate wet deposition rate of BC - sea of BC - sea 6.0e-17 7.9e-17 7.5e-17 -7.6e-15 drybc + wetbc (kg m-2 s-1) drybc (kg m-2 s-1) 3.2e-17 1.0e-17 dryso2 (kg m-2 s-1) -8.6e-15 wetbc (kg m-2 s-1) 4.9e-18 -5.9e-17 -9.5e-15 -1.3e-16 -5.0e-17 -1.6e-16 -2.0e-16 2000 2003 2004 2000 2001 2002 2003 2004 2001 2002 2004 2000 2001 2002 2003 2000 2001 2002 2003 Year Year Year Year wet deposition rate dry deposition rate wet deposition rate total deposition rate of SO2 - sea of SO4 - sea of SO4 - sea of S - sea -1.4e-18 -4.9e-17 -5.4e-15 (kg -7.8e-15 + wetso4)/3 wetso2 (kg m-2 s-1) -2.4e-18 dryso4 (kg m-2 s-1) wetso4 (kg m-2 s-1) (dryso2 + wetso2)/2 + (dryso4 -3.4e-18 -1.8e-15 -1.1e-14 -8.2e-15 -5.4e-18 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year CESM1 -GISS