so2-at-hgt: percent difference surface flux of BC - arctic surface flux of SO2 - arctic surface concentration surface concentration of BC - arctic of SO4 - arctic 0.05% 1e-04% 0.04% 5e-05% 15% 0% 0.03% 0% Percent 10% 0.02% -5e-05% 0.01% -1e-04% 5% 0% -0.00015% 2001 2003 2001 2003 2004 2001 2003 2004 2001 2002 2002 2002 2002 2003 Year Year Year Year upwelling shortwave flux at TOA – arctic surface concentration upwelling longwave flux net radiative flux at TOA - arctic of SO2 - arctic at TOA - arctic 0.6% 0% 0.4% -0.01% Percent 0.4% Percent Percent Percent -0.02% -50% 0.2% -0.03% 0.2% -0.04% 0% 0% -0.05% -55% 2001 2002 2001 2002 2001 2001 2002 Year Year Year Year upwelling clear-sky longwave flux at TOA – arctic upwelling clear-sky shortwave flux at TOA – arctic clear-sky net radiative flux at TOA – arctic incident shortwave flux at TOA - arctic 0.015% 0.6% 0.6% 2e-08% 0.01% 0.4% 0.4% 0.005% Percent 0% Percent Percent 0% 0.2% 0.2% -2e-08% -0.005% -0.01% 0% 0% -4e-08% 2004 2001 2004 2001 2003 2004 2001 2001 2002 2003 2002 2003 2002 2002 2003 Year Year Year Year dry deposition rate wet deposition rate total deposition rate dry deposition rate of BC – arctic of BC - arctic of BC - arctic of SO2 - arctic 0.4% 0.5% 0.5% -20% 0% 0% -25% 0.2% -0.5% Percent Percent -0.5% 0.1% -30% 0% -35% -1.5%-0.1% -1.5% -40% -2% -0.2%2001 2002 2003 2004 2001 2003 2004 2001 2002 2003 2004 2001 2003 2002 2002 Year Year Year Year wet deposition rate dry deposition rate wet deposition rate total deposition rate of SO2 - arctic of SO4 – arctic of SO4 - arctic of S – arctic 80% 30% 30% 60% 15% 25% 25% Percent Percent 20% 40% 20% 10% 15% 15% 20% 10% 5% 10% 0% 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 Year Year Year Year CESM1 E3SM MIROC NorESM2