bc-no-season: percent difference surface flux of SO2 – bc–no–season surface concentration of BC – bc–no–season surface flux of BC – bc–no–season surface concentration of SO4 – bc–no–season surface concentration of SO2 – bc–no–season 0.15% 0% 6% 0.1% -25% 0.1% Percent Percent Percent Percent 4% -50% 0% 0.05% _75% -0.1% 0% 0% 2001 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year Year upwelling longwave flux at TOA – bc-no-season upwelling shortwave flux at TOA – bc–no–season incident shortwave flux at TOA – bc–no–season upwelling clear–sky longwave flux at TOA – bc–no–seasor net radiative flux at TOA - bc-no-season 4e-08% 0.08% 2e-08% Percent -0.25% 0.04% 0.04% -0.5% 0% -0.6% 0% -2e-08% 2003 2003 2002 2003 2002 2003 2004 2001 2002 2004 2001 2002 2003 2004 2001 2002 2004 2001 2004 2001 Year Year Year upwelling clear-sky shortwave clear-sky net radiative dry deposition rate wet deposition rate total deposition rate flux at TOA - bc-no-seasor flux at TOA - bc-no-seasor of BC - bc-no-season of BC - bc-no-season of BC - bc-no-season 10% 10% 0% 0% 0% 5% 5% Percent -0.5% -0.5% 0% 0% -5% 2001 2002 2003 2001 2002 2003 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 Year Year Year Year Year dry deposition rate of SO4 – bc–no–season dry deposition rate wet deposition rate wet deposition rate total deposition rate of SO2 - bc-no-season of SO2 - bc-no-season of SO4 - bc-no-season of S - bc-no-season 0.4% 6% 0.2% Percent Percent Percent 4% Percent 0.5% _2% 0% 0% -0.2% 2001 2003 2001 2003 2001 2002 2003 2004 2001 2002 2003 2001 2003 Year Year Year Year ambient aerosol optical total cloud cover convective cloud cover thickness at 550nm - bc-no-sea percentage - bc-no-seasor percentage - bc-no-season 0.4% 0% -20% Percent Percent _40% -0.8% -60% 2002 2003 Year Year Year GISS **UKESM** CESM² MIROC **GFDI**

E3SM

CESM2

NorESM2

OsloCTM3

GEOS