bc-no-season: percent difference surface flux of SO2 – bc–no–season surface flux of BC – bc–no–season surface concentration surface concentration of SO4 – bc–no–season surface concentration of SO2 – bc–no–season of BC - bc-no-season 0.2% 0% 3% 0.1% -25% 0.75% 2% Percent Percent Percent Percent 0% -50% 0.5% -5% -0.1% 0.25% _75% -0.2% 0% 2002 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 upwelling clear-sky longwav flux at TOA - bc-no-seaso net radiative flux incident shortwave flux at TOA - bc-no-season at TOA - bc-no-season 0.03% 2e-08% 0.02% 0.05% 0.05% 1.5e-08% 0.01% Percent Percent Percent Percent 1e-08% -0.01% -0.01% 5e-09% -0.05% -0.05% -0.02% 0% -0.1% 2003 2003 2002 2003 2003 2004 2001 2002 2004 2001 2002 2003 2004 2001 2002 2004 2001 2001 2002 Year 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 5% 0.1% -2.5% 0.1% 0% Percent -5% 0.05% -5% -15% -7.5% 0% -10% -20% 2001 2002 2003 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2001 2002 2003 Year Year Year Year Year dry deposition rate wet deposition rate dry deposition rate wet deposition rate total deposition rate of SO2 - bc-no-season of SO2 - bc-no-season of SO4 - bc-no-season of SO4 - bc-no-season of S - bc-no-season 0.1% 0.2% -0.5% 0.25% 2% Percent Percent Percent Percent Percent 0% 0% -0.2% -0.2%2001 2003 2001 2002 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-seaso percentage - bc-no-season 0% 0.05% -20% 0% Percent -40% -0.05% 0% -60% -0.1% -0.15% -80% 2002 2003 2002 2003 2002 2001 Year Year Year **UKESM** CFSM1 GISS MIROC **GFDI** E3SM CESM2 NorESM2 OsloCTM3 **GEOS**