bc-no-season: percent difference surface flux of BC – land surface flux of SO2 – land surface concentration of BC – land surface concentration of SO4 – land surface concentration of SO2 – land 0.15% 0% 6% 0.1% -25% 0.1% Percent Percent Percent Percent Percent 4% 0% 0.05% 2% -75% -0.1% 0% -100% 2002 2001 2003 2001 2003 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 Year Year Year Year Year upwelling clear-sky longwave flux at TOA - land upwelling longwave flux at TOA – land upwelling shortwave flux at TOA – land net radiative flux incident shortwave flux at TOA - land at TOA - land 4e-08% 0.08% 2e-08% Percent -0.25% -0.3% 0.04% 0.04% 0% 0% -0.6% 0% 2001 2002 2003 2001 2002 2003 2001 2003 2001 2002 2003 2004 2001 2002 2003 Year Year Year Year Year upwelling clear-sky shortwave flux at TOA - land clear-sky net radiative dry deposition rate wet deposition rate total deposition rate flux at TOA - land of BC - land of BC - land of BC - land 10% 10% 0% 5% 0% 5% -0.5% -0.5% 0% 0% -5% 2003 2003 2003 2001 2003 2001 2003 2001 2001 2002 2001 2002 Year Year Year Year Year dry deposition rate wet deposition rate dry deposition rate wet deposition rate total deposition rate of SO2 - land of SO2 – land of SO4 - land of SO4 – land of S - land 0.4% 0% 6% 0.2% Percent Percent 4% Percent Percent Percent 0.5% -2% 0% 2% -3% 0% -0.2% 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 Year Year ambient aerosol optical total cloud cover convective cloud cover thickness at 550nm - land percentage - land percentage - land 0.4% -20% Percent Percent -40% -0.8% -60% -0.4% 2002 2002 2002 2003 2004 2001 2003 2004 2001 2003 2004 2001 Year Year Year

CFSM1

CESM2

F3SM

GEOS

GFDI

GISS

MIROC

NorESM2

OsloCTM3

UKESM