NH-pacific: absolute 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 1.9e-16 0.0e+00 emibc (kg m-2 s-1) 1.0e-16 mmrso4 (kg kg-1) nmrbc (kg kg-' so2 (kg kg-1) emibc (kg m-2 1.0e 2.0e-17 5.0e-12 -1.0e-10 -2e-12 -6.4e-17 0.00+00 2001 2002 2003 2001 2002 2003 2001 2002 2003 2001 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 longwav flux at TOA - bc-no-seaso net radiative flux at TOA - bc-no-season 3e-01 2e-01 1e-01 rlut + rsut (W m-2) 2e-01 rlutcs (W m-2) rlut (W m-2) 0e+00 sut (W m-2) sdt (W m-2) 1e-07 5e-02 1e-01 0e+00 0e+00 0e+00 -1e-01 -1e-07 -1e-02003 2003 2003 2001 2002 2003 2001 2002 2001 2002 2003 2001 2002 2001 2002 Year Year Year Year Year dry deposition rate of BC – bc–no–season upwelling clear-sky shortwa clear-sky net radiative implied cloud response wet deposition rate flux at TOA - bc-no-seaso flux at TOA - bc-no-seasor at TOA - bc-no-season of BC - bc-no-season rlut+rsut-rlutcs-rsutcs(W~m^ 1e-01 4e-02 rlutcs + rsutcs (W m-2) 0.0e+00 wetbc (kg m-2 s-1) drybc (kg m-2 s-1) rsutcs (W m-2) 0e+00 0e+00 -5.0e-02 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year Year dry deposition rate of SO4 – bc–no–season total deposition rate dry deposition rate wet deposition rate wet deposition rate of BC - bc-no-season of SO2 - bc-no-season of SO2 - bc-no-season of SO4 - bc-no-season 1.0e-14 drybc + wetbc (kg m-2 s-1) wetso4 (kg m-2 s-1) dryso2 (kg m-2 s-1) wetso2 (kg m-2 s-1) dryso4 (kg m-2 s-1) 5.2e-15 6.6e-15 1.0e-13 -2e-14 5.0e-14 0e+00 -6.9e-1 2002 2003 2001 2002 2003 2002 2003 2001 2003 2001 2002 2003 Year Year Year Year Year m-2 s-1) convective cloud cover percentage – bc-no-season total deposition rate ambient aerosol optical total cloud cover of S - bc-no-season thickness at 550nm - bc-no-se percentage - bc-no-seasor (dryso2 + wetso2)/2 + (dryso4 + wetso4)/3 (kg 7.5e-14 0.0e+00 0.0e+00 1e-01 clt (%) -5.0e-02 0e+00 0.0e+00 -7.5e-02 -7.5e-02 2002 2003 2002 2002 2003 Year Year Year Year

CESM₁

E3SM

GISS

CESM2

MIROC

NorESM2

GFDL

OsloCTM3

UKESM

GEOS