bc-no-season: percent difference surface flux surface flux surface concentration surface concentration surface concentration of BC - NH-pacific of SO2 - NH-pacific of BC - NH-pacific of SO4 - NH-pacific of SO2 - NH-pacific 0.00+00 4e-01 3e+00 -2.5e+01 2e-01 Δ emibc ∆ mmrso4 2e+00 6.0e -4e+00 -5.0e+01 0e+00 3.0€ -6e+00 0e+00 0.0e+00 -8e+00 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 2002 2003 2004 Year Year upwelling longwave flux at TOA – NH-pacific upwelling shortwave flux at TOA – NH–pacific net radiative flux at TOA – NH–pacific incident shortwave flux at TOA – NH-pacific upwelling clear-sky longwa flux at TOA - NH-pacific 1e-07 4e-01 2 56-02 2e_01 rsut ∆ rlut + r 2e-0 0.0e+00 0e+00 00+00 -5e-08 -1e-01 -1e-07 -2e-0° -5.0e-02 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year upwelling clear-sky shortwave flux at TOA - NH-pacific dry deposition rate of BC – NH–pacific clear-sky net radiative implied cloud response wet deposition rate flux at TÓA - NH-pacific at TOA - NH-pacific of BC - NH-pacific rsutcs) 2e-01 5.0e-01 0.0e+001.5e-01 1.0e-01 -2.5e+00 ∆ rsutcs 5.0e-02 -5.0e+00 -5.0e+00 rsut – 0.0e + 0.0-7.5e+00 -7.5e+002000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year wet deposition rate of SO2 – NH–pacific dry deposition rate of SO4 – NH–pacific wet deposition rate of SO4 – NH–pacific total deposition rate of BC – NH–pacific dry deposition rate of SO2 – NH–pacific 0.0e+00 1e+00 4e+00 2e-01 3e+002e+005e-01 ∆ wetso2 ∆ wetso4 0e+002e+00 -1 0e+01 1e+00 0e+00 1e+00 _2e_01 0e+00 -1.5e+01-5e-0° 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year $\frac{1}{3} dryso2 + wetso2)/2 + \frac{1}{3} dryso4 + wetso4)/3$ Year total deposition rate ambient aerosol optical total cloud cover - NH-pacif convective cloud cover - NH-pa surface cloud cover - NH-pa of S - NH-pacific thickness at 550nm - NH-pag 5 0e-01 2e-01 1e-01 0.0e+00 1e-01 픙 0e+00 2.5e+00 -4e+01 -01 0.0e+00 -6e+01 -1e-01 -2e-01 _1 5e+00 20002001200220032004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year Year ice water path - NH-pacific surface concentration column mass burden column mass burden column mass burden of DMS - NH-pacific of BC - NH-pacific of SO2 - NH-pacific of SO4 - NH-pacific 6e+00 5e+00 1.5e+01 5e-01 4e+00 0e+00 1.0e+01 Δ dms 0e+00 -5e+000e+00 2e+00 -5e-01 -1e+01 0.0e+00 -2e-01 -1e+00 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2000 2001 2002 2003 2004 Year Year Year Year Year

CAM5

CESM1

CESM2

E3SM

GEOS

GFDL

GISS

MIROC

NorESM2

OsloCTM3

UKESM