so2-at-height: absolute difference surface concentration of SO2 – NH–pacific surface flux surface flux surface concentration of BC - NH-pacific of SO2 - NH-pacific of BC - NH-pacific of SO4 - NH-pacific 1.2e-20 Δ emibc (kg m⁻² s⁻¹) ∆ mmrbc (kg kg−1) Δ emiso2 (kg m $^{-2}$ s $^{-1}$ (kg kg-1 $\Delta so2 (kg kg - 1)$ 5.0e-13 1.5e-13 2.5e-2 1.0e-13 2.5e-13 mmrso4 0.0e+00 -2 4e-21 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 upwelling longwave flux at TOA – NH-pacific upwelling shortwave flux at TOA – NH–pacific incident shortwave flux at TOA – NH-pacific upwelling clear-sky longwa flux at TOA - NH-pacific net radiative flux at TOA - NH-pacific 3e-0 0e+00 Δ rlut + rsut (W m⁻²) 0e+00 Δ rlutcs (W m-2) Δ rlut (W m – 2) E rsdt (W m-5.0e-02 1e-01 2e-07 rsut (W 0.0e+00 -4e-01 -5.0e-02 0e+00 -1e-01-1.0e-01 -2e-0 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year wet deposition rate of BC – NH–pacific upwelling clear-sky shortway flux at TOA - NH-pacific clear-sky net radiative flux at TOA - NH-pacific dry deposition rate of BC – NH–pacific $\rm rsutcs \ (W\ m^{-2})$ implied cloud response at TOA - NH-pacific 2e-01 Ē Δ rsutcs (W m – 2) wetbc (kg m⁻² s⁻¹ drybc (kg m^{-2} s $^{-1}$ rsutcs (W -2e-01 rlutcs -_4e_01 -4e-0 -2e-0° -6e-01 rsut – -8e-01 rlut + 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 dry deposition rate of SO2 – NH–pacific 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 Δ drybc + wetbc (kg m⁻² s⁻¹ 4.6e-15 dryso2 (kg m⁻² s⁻ wetso2 (kg m⁻² s⁻ ∆ dryso4 (kg m⁻² s⁻ 2.8e-15 wetso4 (kg m^{-2} 2e-13 9.9e-16 0e+00 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 Year Yea Year Year Year dryso2 + wetso2)/2 + (dryso4 + wetso4)/3total cloud cover - NH-pacif total deposition rate ambient aerosol optical convective cloud cover - NH-pa surface cloud cover - NH-pa of S - NH-pacific thickness at 550nm - NH-page 2e-01 ∆ cltc (percent) ∆ clt (percent) (percent) 0e+00 $(kg m^{-2} s^{-1})$ ∆ od550ae 1e-01 -3e-02\ | | | 1e+35 _6e_02 0e+00 -9e-02 20002001200220032004 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 Year Year Year Year Year ice water path - NH-pacifi 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 1e-03 0.0e+00 Δ loadso4 (kg m⁻²) $\log dbc \, (kg \; m^{-2})$ Δ clivi (kg m $^{-2}$) Δ loadso2 (kg m $^{-2}$ ∆ dms (kg kg –1) 6e-07 5e-04 4e-07 -1.0e-09 0e+00 2e-07 0e+00-5e-04 0e+00 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year Year

CAM5

CESM1

CESM2

E3SM

GEOS

GFDL

GISS

MIROC

NorESM2

OsloCTM3

UKESM