## shp-atl-shift-1950: absolute difference surface concentration of BC – NH–pacific surface flux surface concentration surface concentration of BC - NH-pacific of SO2 - NH-pacific of SO4 - NH-pacific of SO2 - NH-pacific 1.5e-01 -5 0e+00 1 0e-01 -1.5e+00 0e+00 5.0e-02 -4e+00 -1.0e+01 \_1e\_05 0.0e+0.0-5e+00 -5.0e-02 -2.5e+00 -1.5e+01 -6e+00 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year 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 longwav flux at TOA – NH–pacific 5 0e-02 0.0e+00 6e-02 0e+00 4e-02 -5.0e-02 0e+00 2e-02 0.0e + 0.0e +-1 0e-01 0e+00 -1.5e-01 -2 5e-02 -2e-01 -1e-02 -2e-02 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 Year dry deposition rate of BC – NH–pacific clear-sky net radiative implied cloud response wet deposition rate upwelling clear-sky shortway flux at TOA - NH-pacific flux at TOA - NH-pacific at TOA - NH-pacific of BC - NH-pacific -1e-02 rsutcs) 2e-01 -3e-02 rlutcs ß -4e-02 △ wetbc ∆ drybc 0e+00 -5e-02 0e+00 rsut 1e-01 -6e-02 (rlut + -1e-01 -1e-01 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 Year total deposition rate of BC – NH–pacific 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 3e-01 -1.5e+00-1.0e+002e-01 -1.5e+00-3.5e+00 1e-01 -2.0e+000e+00 -1.6e+00 -1e-01 -2.5e+0.0-3.5e+00 -1.6e+00 -2e-01 -3.0e+00 -2.5e+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 $\frac{dryso2 + wetso2}{2 + (dryso4 + wetso4)/3}$ total deposition rate Ice water path - NH-pacifiDimethyl sulphide (DMS) mole fraction cloud cover ambient aerosol optical thickness at 550nm - NH-pacific of S - NH-pacific percentage - NH-pacific 0e+00 -3.3e+00 8 clivi (kg m<sup>-2</sup>) lom lom) smb 당 0e+00 -3.4e+00 ∆ od550aer expression -3.4e+00 -2e-01 -3.4e+00 -6e-02 -9e-01 20002001200220032004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year Year load load of so4 - NH-pacific of bc - NH-pacific -3.0e-01 3e-01 -6.0e $\log dso4 ~(kg~m^{-2})$ 2e-01 oadbc $(kg m^{-2})$ -9.0e-01 1e-01 0e+00 -1.5e+00 -1e-01 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year