## shp-60p-red: absolute difference surface flux of SO2 – NH–pacific surface concentration of BC – NH–pacific surface concentration of SO4 – NH-pacific surface concentration of SO2 – NH–pacific mmrso4 (kg kg-1) nmrbc (kg kg-1) so2 (kg kg – 1) 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000.02002.52005.02007.5 2000.02002.52005.02007.5 Year Year Year Year upwelling shortwave flux at TOA – NH–pacific incident shortwave flux at TOA – NH-pacific upwelling clear-sky longway flux at TOA - NH-pacific net radiative flux at TOA - NH-pacific 0e+00 $lut + rsut (W m^{-2})$ 4e-02 rlutcs (W m-2) sdt (W m-2e-02 -2e-0 0.0e+0.0-2e-02 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year implied cloud response at TOA – NH-pacific clear-sky net radiative flux at TOA - NH-pacific dry deposition rate of BC - NH-pacific wet deposition rate of BC – NH-pacific 1 0e-14 rsutcs (W wetbc (kg $m^{-2}$ s<sup>-1</sup>) drybc (kg $m^{-2} s^{-1}$ 5.9e-16 -1e-0'rlutcs -2 0e-15 rsutrlut + 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year 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 vetso2 (kg m<sup>-2</sup> s<sup>-1</sup> ım<sup>-2</sup> s<sup>-1</sup>, wetso4 (kg $\mathrm{m}^{-2}\,\mathrm{s}^{-1}$ dryso4 (kg 2e-02 1e-02 0e+002000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 Year Year Year Year Ice water path - NH-pacifi Dimethyl sulphide (DMS) mole fraction cloud cover ambient aerosol optical thickness at 550nm – NH-pa percentage – NH-pacific 1e-03 0.0e+00 clivi (kg ${\sf m}^{-2}$ ) \_lom lom) smb -9.0e-04 5e-04 -5.0e-14 -1.2e-03 0e+00 -1.5e-03 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 Year Year Year Year load load of so2 of bc - NH-pacific - NH-pacific -2e-08

