NH-sea: percent difference surface flux surface flux surface concentration surface concentration surface concentration of BC - so2-at-height of SO2 - so2-at-height of BC - so2-at-height of SO4 - so2-at-height of SO2 - so2-at-height 1e+01 1.5e-05 2e+01 mmrso4 1.0e-05 5 0e+00 0e+00 5.0e-06 -1e+01 2.5e+00 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 upwelling longwave flux at TOA – so2–at–height upwelling clear-sky longwav flux at TOA - so2-at-heigh net radiative flux upwelling shortwave flux incident shortwave flux at TOA – so2–at–height at TOA - so2-at-height at TOA - so2-at-height 5e-02 rsut 1e-02 0e+00 0e+00 2e-01 -1e-02 2e-01 -5e-02 -2e-02 00+00 -3e-02 2000 2001 2002 2003 2004 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 Year Year Year Year Year upwelling clear–sky shortwav flux at TOA – so2–at–heigh clear-sky net radiative implied cloud response dry deposition rate wet deposition rate flux at TOA - so2-at-heigh at TOA - so2-at-height of BC - so2-at-height of BC - so2-at-height rsutcs) 2.0e+00 2.0e+00 1.5e+00 1.5e+00 rlutcs -5e-01 1.0e+00 rsut 1e+00 _2 5e_01 0.0e+00 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 dry deposition rate of SO2 – so2–at–height wet deposition rate of SO2 – so2–at–height dry deposition rate of SO4 – so2–at–height wet deposition rate of SO4 – so2–at–height total deposition rate of BC - so2-at-height 2.5e+01 1e+01 2.0e+01 ∆ drybc + wetbc 2.0e+01 0e+00 0e+00 1.0e+01 -1e+00 5.0e+00 -5e+00 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 Year Year Year Year Year $\frac{1}{3} dryso2 + wetso2)/2 + \frac{1}{3} dryso4 + wetso4)/3$ total deposition rate ambient aerosol optical total cloud cover - so2-at-hei convective cloud cover - so2-at-l of S - so2-at-height thickness at 550nm - so2-at-h 0.0e+00 1e-01 od550ae 4e+35 -2e+01 0e+00 -5.0e-01 4e+01-4e+01 2e+35 -1e-01-7 5e-01 _6e+01 2e+01 -2e-01 0e+00 20002001200220032004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 Year Year Year Year Year ice water path - so2-at-heig column mass burden surface concentration column mass burden column mass burden of DMS - so2-at-height - so2-at-height of SO2 - so2-at-height of SO4 - so2-at-height 1e+00 1e+00 3e+01 5.0e-01 5e-01 loadso2 2e+01 ∆ clivi 0e+00 0e+00 1e+01 -5e-01 0.0e+0.0-5e-01 -1e+00 -1e+00

2000 2001 2002 2003 2004

Year

