global: percent difference surface flux surface flux surface concentration surface concentration surface concentration of BC - bc-no-season of SO2 - bc-no-seasor of SO4 - bc-no-season of SO2 - bc-no-season 4e-01 60400 0.00+00 3e-01 -2.5e+01-1e+00 mmrs04 Δ emibc 2e-01 -5.0e+01 0e+00 2e+00 1e_01 -1e-010e+00 -3e+002002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 2002 2003 2004 2000 2001 2000 2001 2002 2003 2004 Year upwelling clear-sky longway flux at TOA - bc-no-seaso incident shortwave flux upwelling longwave flux upwelling shortwave flux net radiative flux at TOA - bc-no-season at TOA - bc-no-season at TOA - bc-no-season at TOA - bc-no-season 5.0e-08 2e-02 2.5e-02 2.5e-0° 2e-01 ∆ rsut 16-02 ∆ rlut + 00+00 0.0e+0.0-2e-01 _2 5e_01 -2.5e-02 -5.0e-08 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 Year Year Year Year Year upwelling clear–sky shortway flux at TOA – bc–no–seaso clear-sky net radiative implied cloud response dry deposition rate wet deposition rate flux at TOA - bc-no-seaso at TOA - bc-no-season of BC - bc-no-season of BC - bc-no-season rsutcs) 0e+00 2e-01 2.5e-0° rlutcs -1e-01 0.0e+00 -2e-01 rsut -2e+00-4e-01 -3e+00 -5 0e-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 dry deposition rate of SO2 – bc–no–season wet deposition rate of SO2 – bc–no–season dry deposition rate of SO4 – bc–no–season wet deposition rate of SO4 – bc–no–season total deposition rate of BC - bc-no-season 1e-01 ∆ drybc + wetbc -2e+00 0.0e + 002e+00 0e+00 -4e+001e+00 2e+00 -02 -5.0e-01 0e+00 -6e+00 -1e-01 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 Year Year Year $\frac{1}{3} dryso2 + wetso2)/2 + \frac{1}{3} dryso4 + wetso4)/3$ Year surface cloud cover - bc-no-se total deposition rate ambient aerosol optical total cloud cover - bc-no-sea convective cloud cover - bc-no-s of S - bc-no-seasor thickness at 550nm - bc-no-se 1e-01 7.5e+00 0e+00 0e+00 -1e+00∆ clt <u>\</u> 5.0e+00 -2e+00 -1e-∩1 -1e-01-6e+01 -3e+00 -2e-0120002001200220032004 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 - bc-no-sease surface concentration column mass burden column mass burden column mass burden of DMS - bc-no-season of BC - bc-no-season of SO2 - bc-no-season of SO4 - bc-no-season 1.5e+01 4e-01 3e-01 0e+00 2e-01 2e-01 ∆ clivi 1e-01 0e+00 0e+00 5.0e+00 -2e-01 -1e-01 0e+00 0.0e+00 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2000 2001 2002 2003 2004 Year Year Year Year Year CAM5 E3SM **GISS** OsloCTM3

CESM1

CESM2

GEOS

GFDL

MIROC

NorESM2

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