bc-no-season: absolute difference surface flux of SO2 – bc–no–season surface concentration of SO4 – bc–no–season surface flux of BC – bc–no–season surface concentration surface concentration of SO2 – bc–no–season 1.2e-03 0.0e+00 8e+00 emibc (kg m-2 s-1) 6e+00 nmrbc (kg kg-1) 8.0e-04 1e+00 so2 (kg kg-1) mmrso4 (kg 4e+00 -5.0e+01 4.0e-04 -2e+00 2e+00 _7 5e+01 0.0e+00 0e+00 2001 2001 2002 2003 2001 2002 2003 2002 2003 2001 2002 2003 2001 2002 2003 Year Year Year Year Year upwelling longwave flux at TOA – bc-no-season upwelling shortwave flux at TOA – bc–no–season incident shortwave flux at TOA – bc-no-season upwelling clear-sky longway flux at TOA - bc-no-seaso net radiative flux at TOA - bc-no-season 1e-07 0.0e+00 rlut + rsut (W m-2) 1.0e-01 rsut (W m-2) rsdt (W m-2) 4e-01 ·lutcs (W 5.0e-02 0e+00 -8e-01 0.0e+00 -1.2e+00 2002 2003 2003 2003 2004 2003 2003 2001 2004 2001 2002 2001 2002 2001 2002 2001 2002 Year Year Year Year Year upwelling clear-sky shortwa clear-sky net radiative dry deposition rate wet deposition rate total deposition rate flux at TOA - bc-no-seaso flux at TOA - bc-no-seaso of BC - bc-no-season of BC - bc-no-season of BC - bc-no-season 0.0e+00 drybc + wetbc (kg m-2 s-1) 4e+00 drybc (kg m-2 s-1) vetbc (kg m-2 s-1) 4e+00 0e+00 -5.0e-01 utcs + rsutcs (W 2e+00 2e+00 -1.0e+00 0e+00 0e+00 -1.5e+00-2e+00 -2e+00 -2e+00 -2 0e+00 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2004 2001 2002 2003 2001 2002 2003 Year Year Year Year Year dry deposition rate of SO2 – bc–no–season dry deposition rate of SO4 – bc–no–season wet deposition rate of SO4 – bc–no–season wet deposition rate total deposition rate of SO2 - bc-no-season of S - bc-no-season 0e+00 6e+00 dryso4 (kg m-2 s-1) wetso2 (kg m-2 s-1) wetso4 (kg m-2 s-1 0e+00 8 0e-01 4e+00 (dryso2 + wetso2)/2 + (dryso4 + -2e+00 4.0e-01 -1e+00 -3e+00 2e+00 0.0e+00 0e+00 2001 2002 2003 2001 2003 2001 2002 2003 2001 2002 2003 2001 2003 Year Year Year Year convective cloud cover percentage – bc-no-season ambient aerosol optical total cloud cover thickness at 550nm - bc-no-se percentage - bc-no-seaso 0e+00 0e+00 -2e-01 -6e-01 -6e-0

2002

MIROC

NorESM2

2003

GFDI

OsloCTM3

UKESM

GEOS

Year

4e-01

3e-01

2e-01

1e-01

0e+00

1e-01

5e-02

0e+00

-5e-02

0.0e+00

-5.0e-01

-1.0e+00

-2.0e+00

2e-01

0e+00

0e+00

-2e+01

-6e+01

2002

Year

2003

2002

CESM₁

E3SM

2003

GISS

CESM2

Year

rsutcs (W m-2)

dryso2 (kg m-2 s-1)

rlut (W m-2)

emibc (kg m-2 s-1)