Reference – absolute sea averages surface flux of BC - sea surface flux of SO2 - sea surface concentration of BC – sea surface concentration surface concentration of SO4 - sea of SO2 - sea 3.0e-11 $\mathrm{emibc}\,(\mathrm{kg}\,\mathrm{m}^{-2}\,\mathrm{s}^{-1})$ emiso2 $(kg m^{-2} s^{-1})$ mmrso4 (kg kg mmrbc (kg kg⁻¹ so2 (kg kg⁻¹ 6.5e-10 2.0e-1 5.5e-10 2002 2003 2004 2002 2003 2004 2002 2003 2004 2002 2003 2004 2000 2001 2000 2001 2000 2001 Year Year Year Year Year clear-sky longwave flux at TOA - sea longwave flux at TOA - sea shortwave flux at TOA - sea net radiative flux at TOA - se incident shortwave flux at TOA - sea 347.4 347 3 rlut + rsut (W m⁻²) $rlut (W m^{-2})$ -242 $rsut (W m^{-2})$ rlutcs (W m⁻²) -263 $rsdt (W m^{-2})$ -100 -344 -244 -101 -264 -246 -348 347.0 -102 -248 2000 2001 2002 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 Year Year clear–sky shortwave flux at TOA – sea clear–sky net radiative flux at TOA – sea dry deposition rate of BC – sea wet deposition rate of BC – sea implied cloud response at TOA - sea rlutcs – rsutcs (W m^{-2}) 6e-14 rlutcs + rsutcs (W m⁻²) -302 -39.2 -37.5 wetbc $(kg m^{-2} s^{-1})$ drybc (kg m⁻² s⁻¹ $rsutcs (W m^{-2})$ -40.0 -303 -39.4 1.6e-13 -42.5rlut + rsut --304 -39.6 2e-14 2002 2003 2004 2003 2004 2002 2003 2004 2002 2003 2004 2000 2001 2002 2003 2004 2000 2001 2000 2001 2002 2000 2001 2000 2001 Year Year Year Year Year dry deposition rate of SO2 – sea total deposition rate of BC – sea wet deposition rate dry deposition rate wet deposition rate of SO2 - sea of SO4 - sea of SO4 - sea 3.0e-13 1.391407e-15 $drybc + wetbc (kg m^{-2} s^{-1})$ wetso4 $(kg m^{-2} s^{-1})$ dryso2 (kg $\mathrm{m}^{-2}\,\mathrm{s}^{-1}$ wetso2 (kg $\mathrm{m}^{-2}\,\mathrm{s}^{-1}$ dryso4 (kg m^{-2} s⁻¹ 2.0e-13 1.340762e-15 1 290116e 2000 2001 2002 2003 2004 2000 2001 2002 2003 2004 20002001200220032004 2000 2001 2002 2003 2004 2002 2003 2004 2000 2001 Year Year Year Year Year total deposition rate (dryso2 + wetso2)/2 + (dryso4 + wetso4)/3of S - sea 5.50e-12 5.25e-12 $(kg m^{-2} s^{-1})$ 5.00e-12 20002001200220032004 Year