Supplement 3

Additional evaluation results

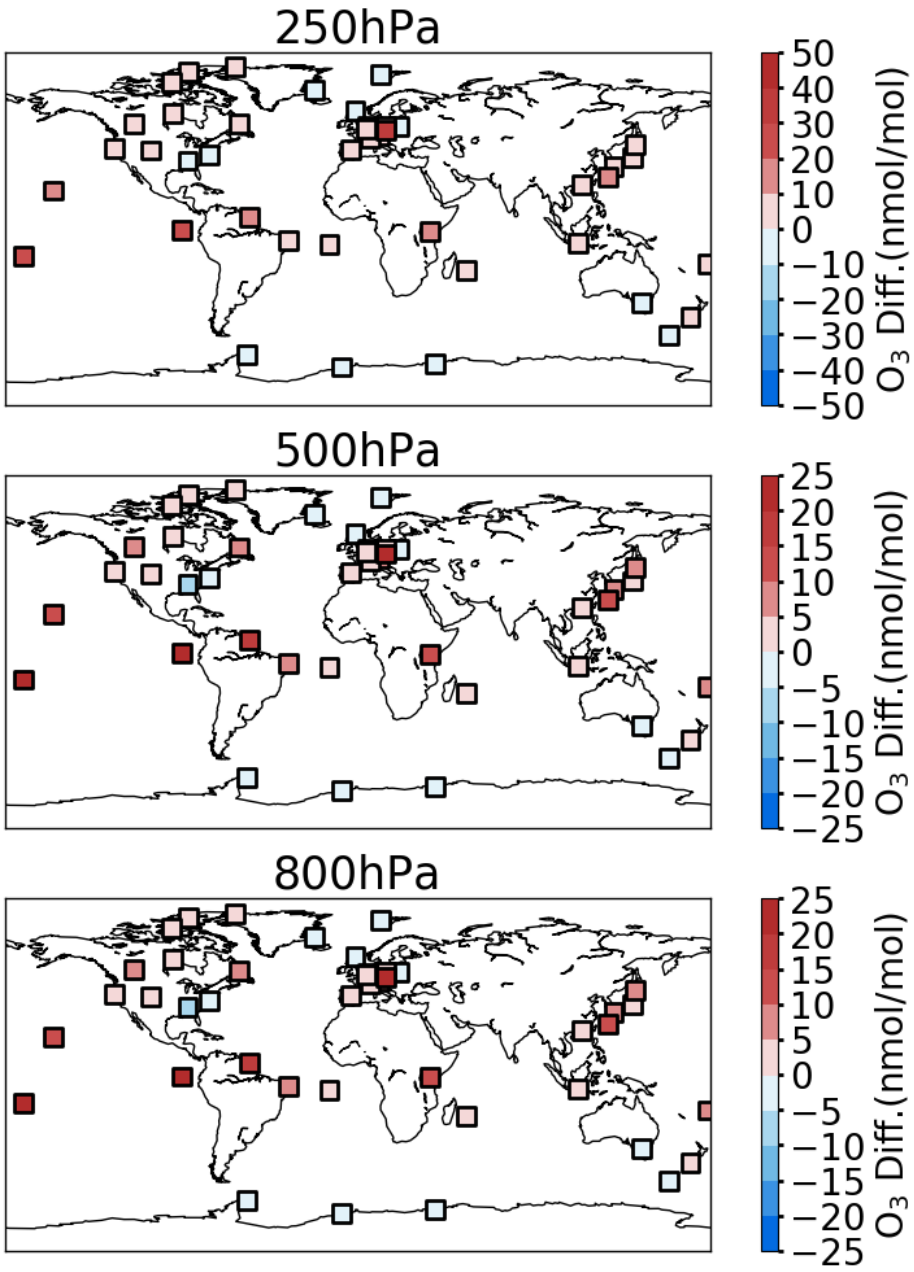

Figure S3.1: Annual mean bias of the ECHAM-HAMMOZ simulation lght*4 versus ozone sondes from the climatology of Tilmes et al., 2011. See Figure 4 in the main text for comparison.

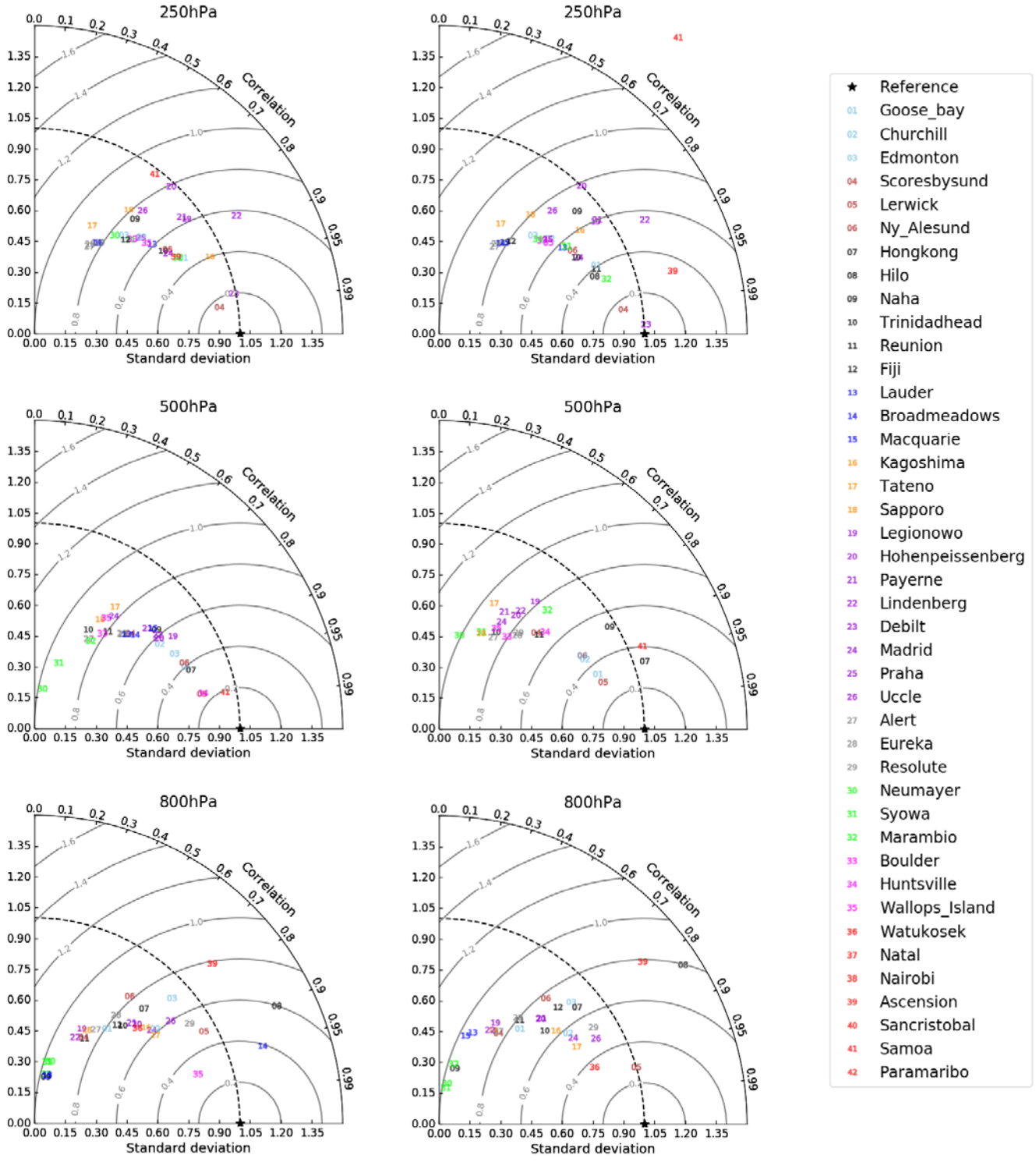

Figure S3.2: Taylor plot (ratio of standard deviations and correlation coefficient) of the ECHAM-HAMMOZ base run (left) and the lght*4 simulation (right) versus the ozone sonde climatology of Tilmes et al. (2012). Compare with Figure 5 from the main text, where regional averages are shown for the base run.

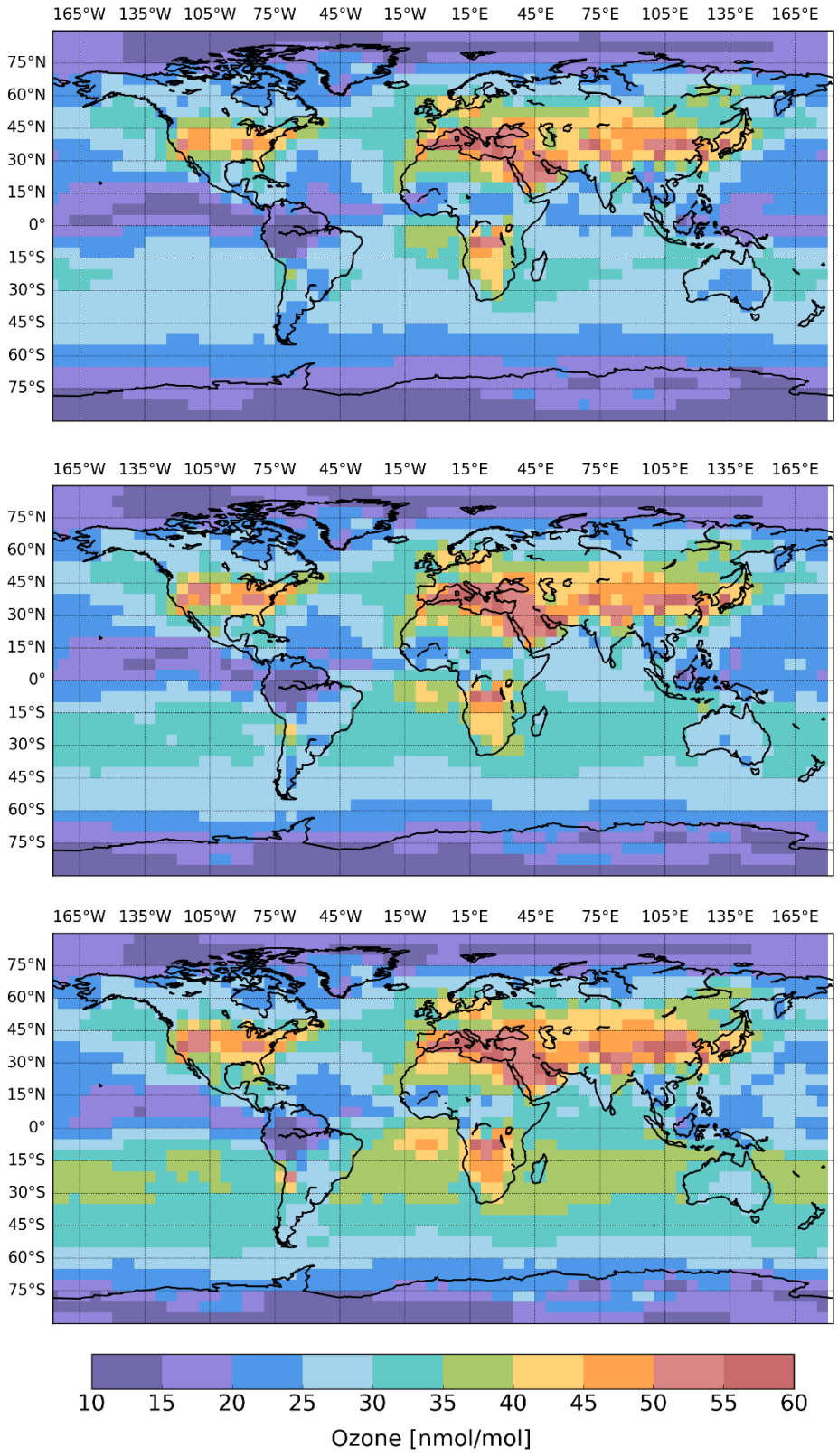

Figure S3.3: Monthly mean maps of surface ozone mixing ratios from three ECHAM-HAMMOZ simulations for July 2008. Top: base run (same plot as lower right panel in Figure 7 of the main text); middle: run lght*2; bottom: run lght*4.

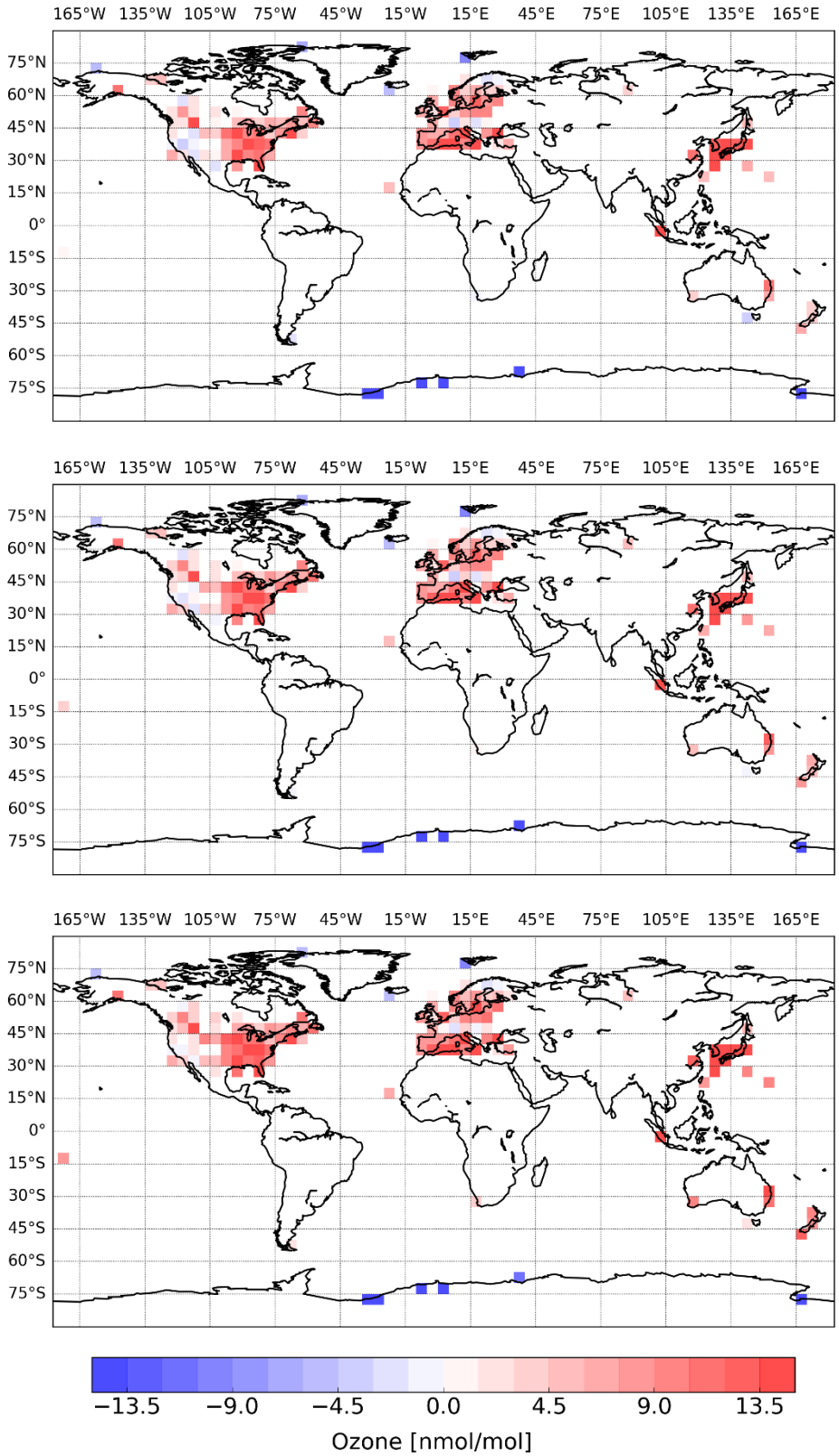

Figure S3.4: Monthly mean bias maps of surface ozone mixing ratios from three ECHAM-HAMMOZ simulations for July 2008 in comparison with rural stations from the TOAR database. Top: base run; middle: run lght*2; bottom: run lght*4.

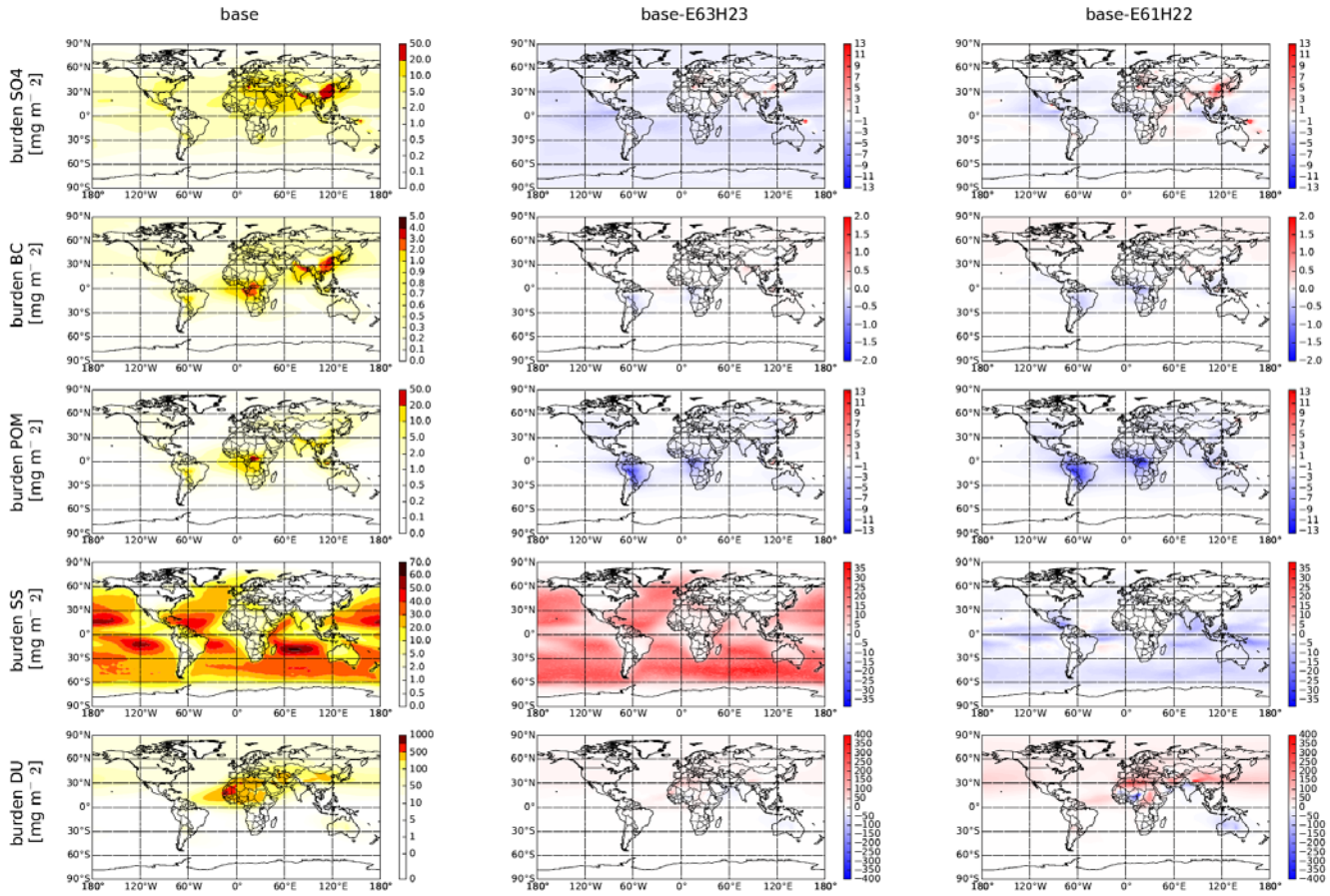

Figure S3.5: Comparison of the spatial distribution of 10 year means of aerosols mass burdens in mg m^{-2}. Each row corresponds to the following aerosol species: sulfate (SO4), black carbon (BC), particulate organic matter (POM), sea salt (SS) and mineral dust (DU). The left panel shows the 10 year mean of the ECHAM-HAMMOZ (base) simulation. The middle and right, panels contain the differences between ECHAM-HAMMOZ and ECHAM6.3-HAM2.3 (E63H23), and ECHAM6.1-HAM2.2 (E61H22), respectively. The scale for the difference figures (middle and right panels) is computed as follows: maximum of the base simulation plus the standard deviation of the AeroCom models for the corresponding aerosol species.

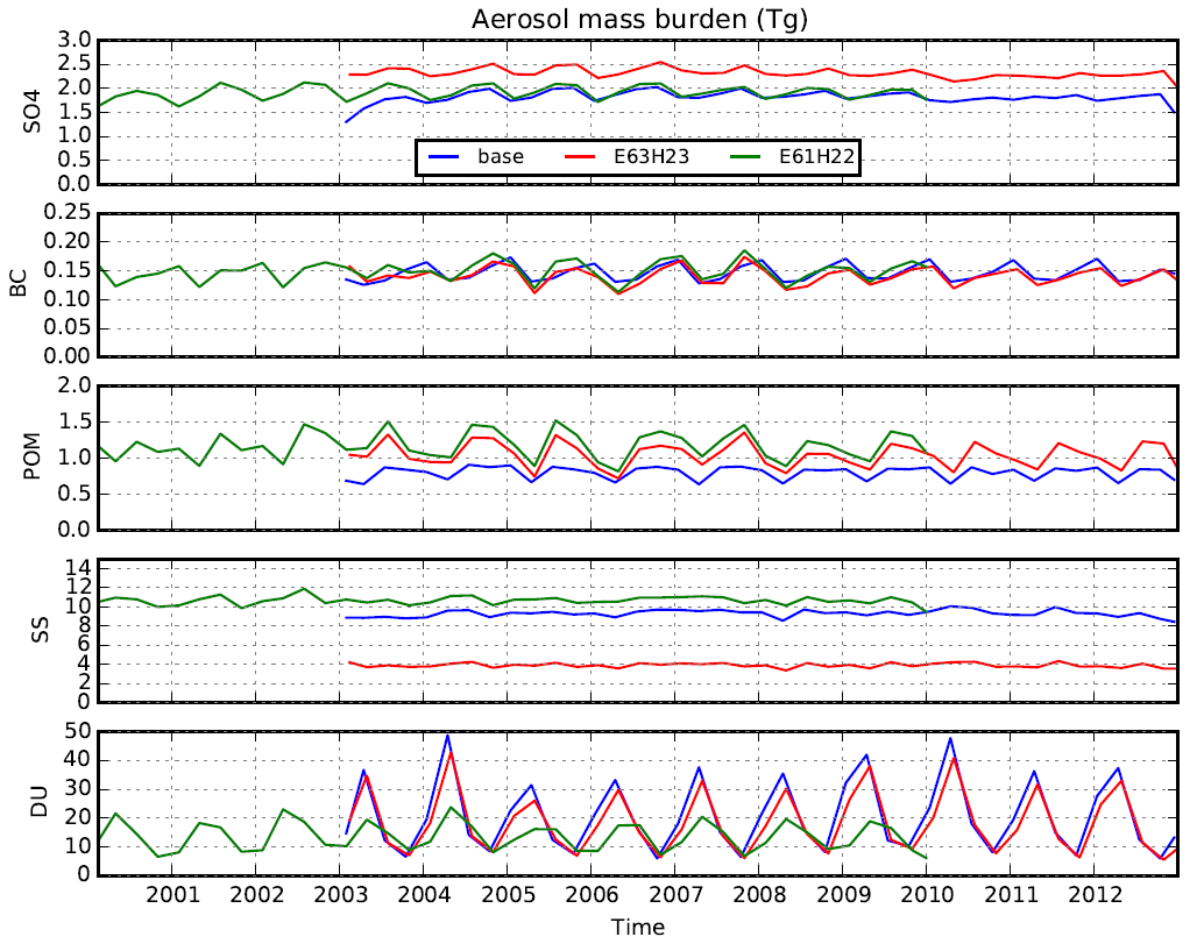

Figure S3.6: Global seasonal mean aerosol mass burdens in Tg for the three model simulations: ECHAM6-HAMMOZ (base), ECHAM6.3-HAM2.3 (E63H23) and ECHAM6.1-HAM2.2 (E61H22). Rows correspond to the following aerosol species: sulfate (SO4), black carbon (BC), particulate organic matter (POM), sea salt (SS) and mineral dust (DU). The reference time range for E61H22 is 2000-2009, and the reference time simulation for base and E63H23 is 2003-2012.