



Supplement of

Surface temperature response to regional black carbon emissions: do location and magnitude matter?

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Supplementary figures



Figure S1: Global BC emissions (in Tg/yr). Grey bars represent the baseline emissions. Green bars represent the added increase in global BC emissions for the lowest emission rates (10×BC emissions for Europe, North America and South Asia, and 5×BC emissions in East Asia), i.e. total global emissions are then grey+green bars. Total height of the bars (grey+green+blue) represent the global BC emissions for the highest emission rates (20×BC emissions for Europe, North America and 50×BC emissions for the highest emission rates (20×BC emissions for Europe, North America and 50×BC emissions in East Asia).



Figure S2: Effective radiative forcing (in Wm⁻²) to BC emissions perturbations. The emission location (Europe, North America, South Asia, East Asia) is given on top of each plot. In the right-side column the emission rate is doubled compared to the left-side column.

BC concentrations [ug/m³] normalized to emissions [Tg/yr] Europe



Figure S3: Zonal mean BC concentrations normalized to emissions for European emission perturbations.



BC concentrations [ug/m³] normalized to emissions [Tg/yr] North_America

Figure S4: As S3, but for North American emission perturbations.



BC concentrations [ug/m³] normalized to emissions [Tg/yr] East_Asia

Figure S5: As S3, but for East Asian emission perturbations.



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BC concentrations [ug/m³] normalized to emissions [Tg/yr] South_Asia





Figure S6: As S3, but for South Asian emission perturbations.