Supplementary figures

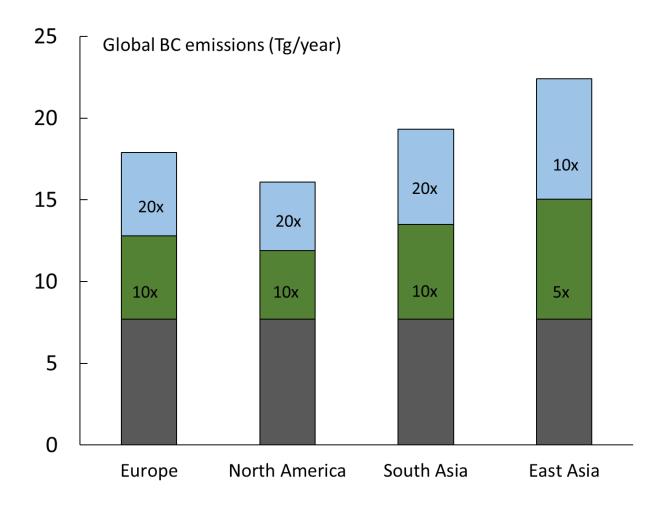


Figure S1: Global BC emissions (in Tg/yr). Grey bars represent the baseline emissions. Green bars represent the added increase in global BC emissions for the lowest emission rates ($10\times BC$ emissions for Europe, North America and South Asia, and $5\times BC$ emissions in East Asia), i.e. total global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

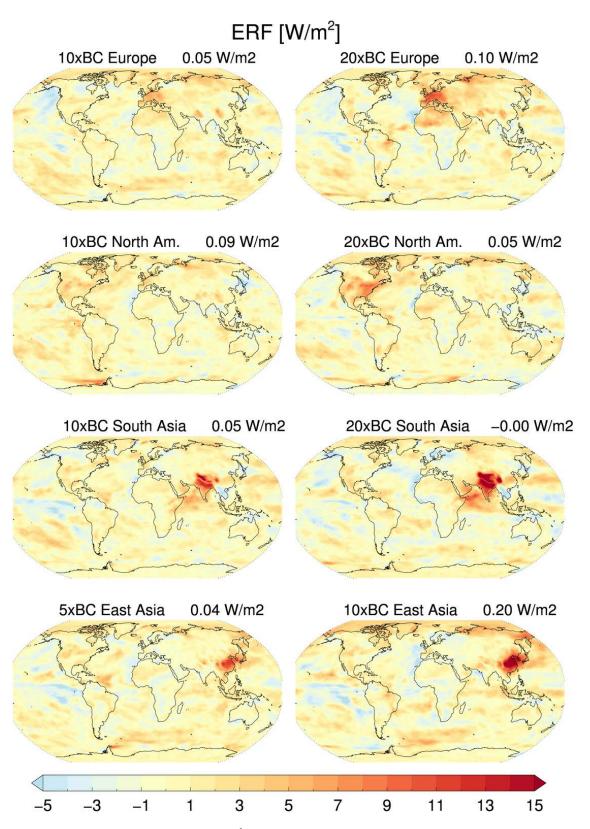


Figure S2: Effective radiative forcing (in Wm^{-2}) to BC emissions perturbations. The emission location (Europe, North America, South Asia, East Asia) is given on top of each plot. In the right-side column the emission rate is doubled compared to the left-side column.

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

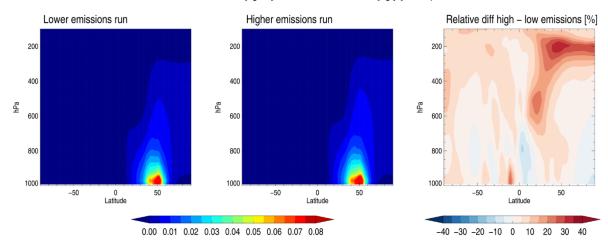


Figure S3: Zonal mean BC concentrations normalized to emissions for European emission perturbations.

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

Lower emissions run

Higher emissions run

Relative diff high – low emissions [%]

400

400

400

800

800

1000

-50

Latitude

America

-40 -30 -20 -10 0 10 20 30 40

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

0.00 0.01 0.02 0.03 0.04 0.05 0.06 0.07 0.08

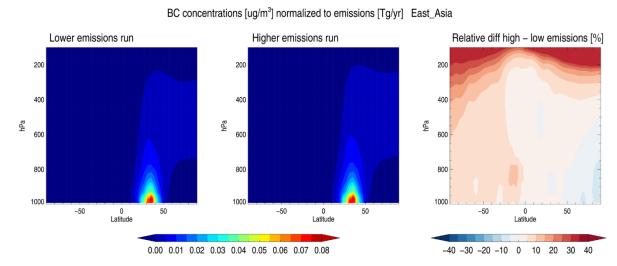


Figure S5: As S3, but for East Asian emission perturbations.

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

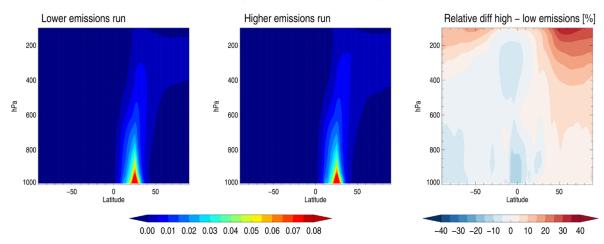


Figure S6: As S3, but for South Asian emission perturbations.