1   Supplementary Information

3   *Table S1: RFari in 2020 and 2050 relative to 1750 by component for SSP1-1.9 and SSP3-7.0*

	Year	total	Sulfate	BC	POA	Biomass	Nitrate	SOA
SSP119	2020	-0.12	-0.22	0.23	-0.05	0.01	-0.03	-0.02
	2050	-0.08	-0.08	0.05	-0.09	0.006	-0.02	-0.007
SSP370	2020	-0.13	-0.27	0.32	-0.06	0.01	-0.04	-0.03
	2050	-0.14	-0.29	0.37	-0.08	0.005	-0.05	-0.03

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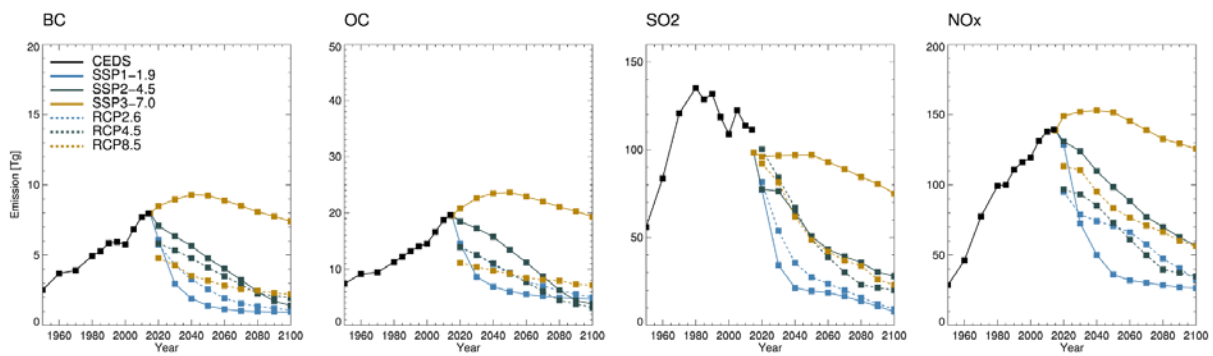
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6   *Figure S1: Annual global fossil fuel plus biofuel combustion emissions of BC, OC, SO₂ and NOx over the*
7   *period 2015 to 2100 in SSP1-1.9, SSP2-4.5 and SSP3-7.0 (solid colored lines) and RCP2.6, RCP4.5 and*
8   *RCP8.5 (dashed lines). Also shown is the development from 1950 to 2014 from the CEDS inventory.*

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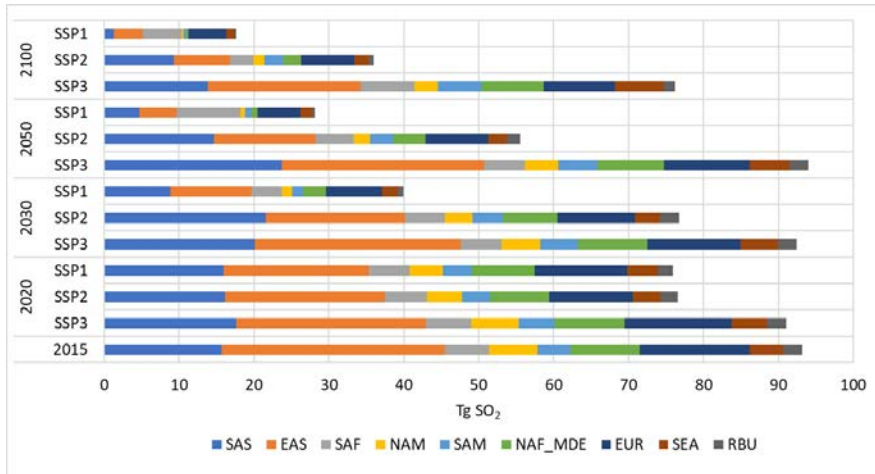
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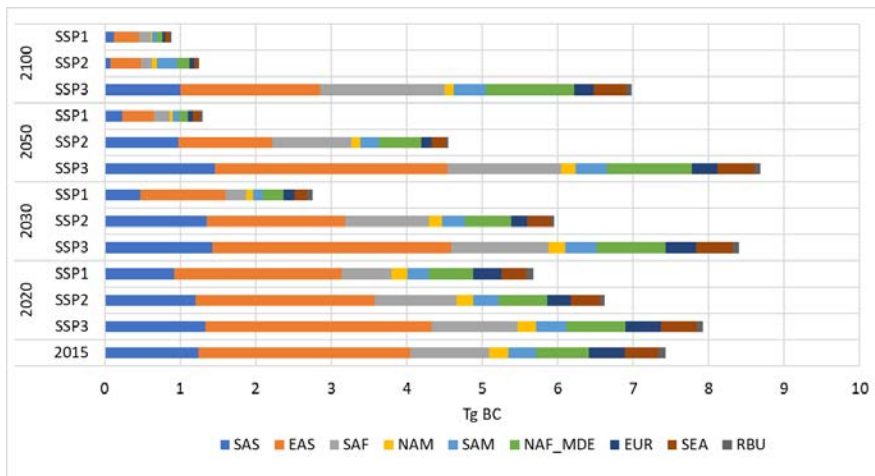
18 *Figure S2: Regional emissions of SO2 (top) and BC (bottom) in 2015, 2020, 2030, 2050 and*
19 *2100 following the three SSPs used in the present study.*

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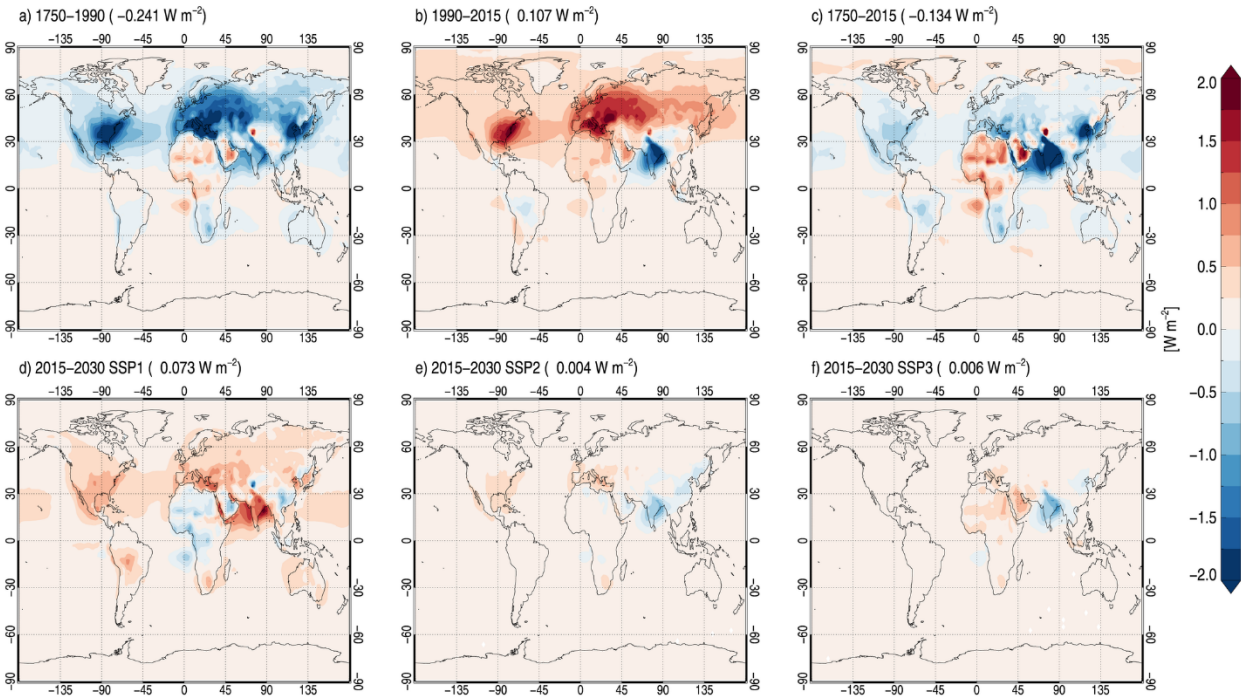
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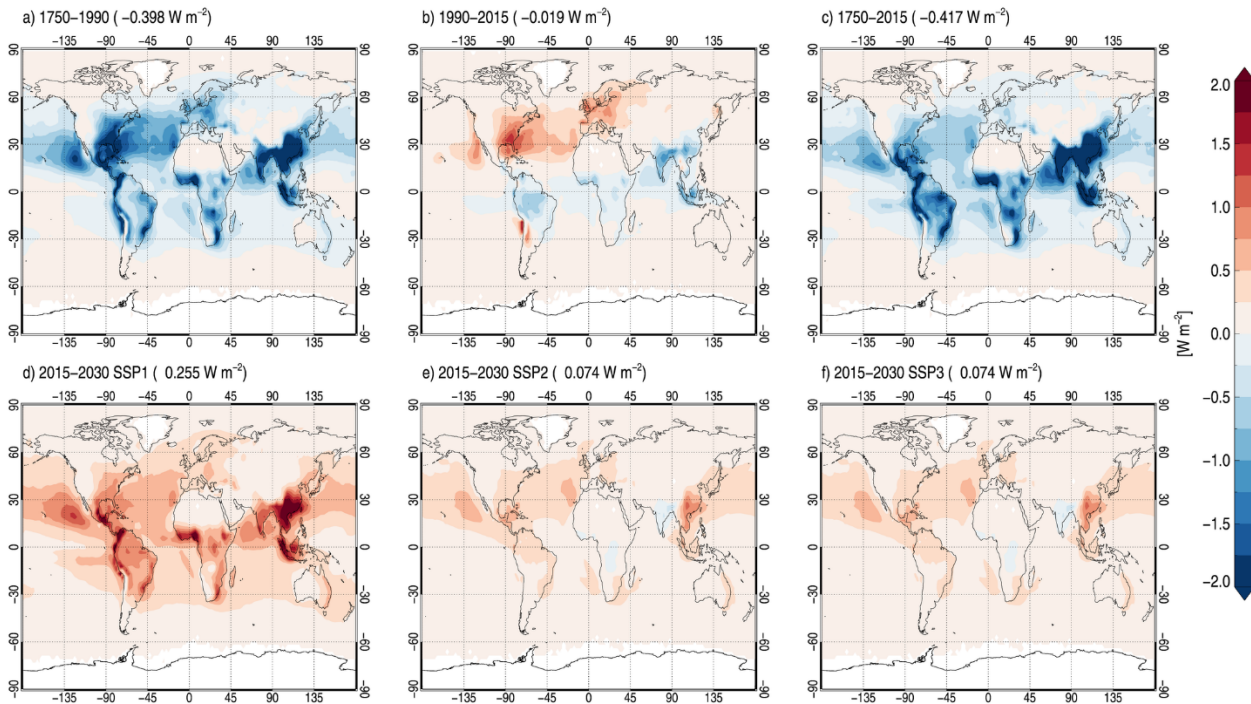
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25 *Figure S3: changes in RFari (top) and RFaci (bottom) for four time periods: 1750-1990, 1990-*
26 *2015, 1750-2015, and 2015-2030 under SSP1-1.9, SSP2-4.5 and SSP3-7.0.*

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