



*Supplement of*

## **Sensitivity of tropospheric loads and lifetimes of short lived pollutants to fire emissions**

**N. Daskalakis et al.**

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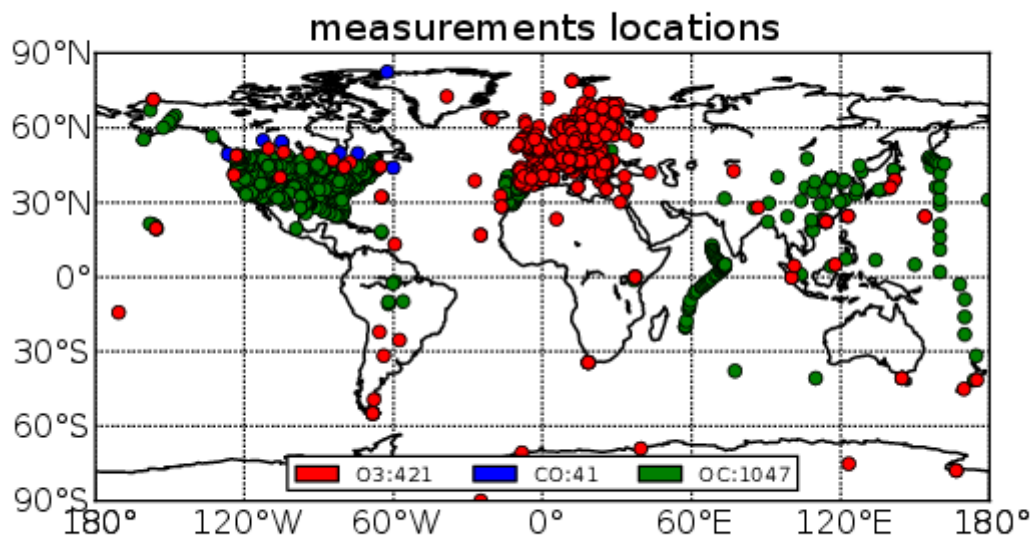
## S1 List of non methane volatile organic carbon compounds

*As NMVOC's in anthropogenic emissions we assume to be:*

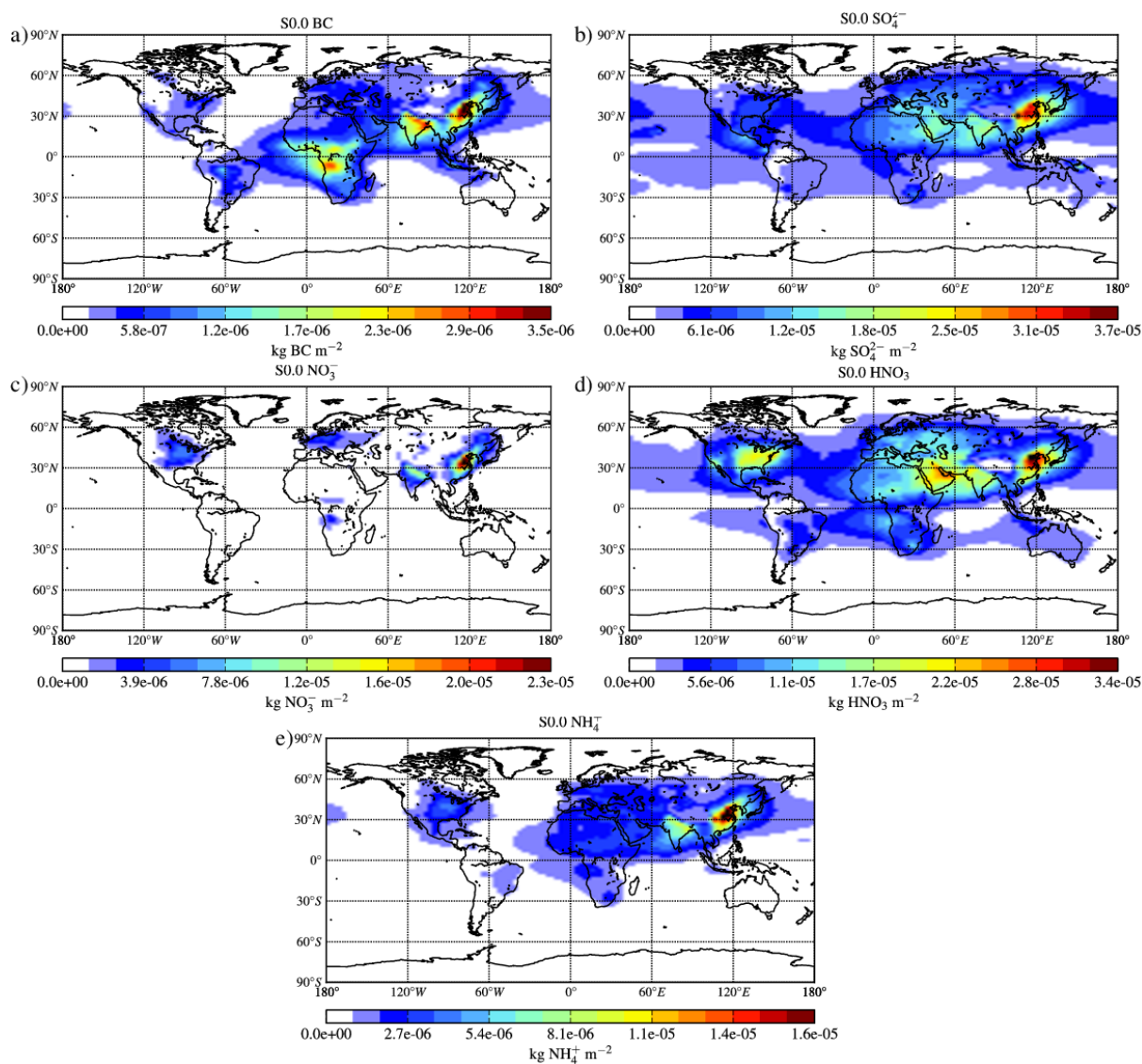
- Acetone (C<sub>3</sub>H<sub>6</sub>O)
- Etyne (C<sub>2</sub>H<sub>2</sub>)
- Ethene (C<sub>2</sub>H<sub>4</sub>)
- Ethane (C<sub>2</sub>H<sub>6</sub>)
- Propane (C<sub>3</sub>H<sub>8</sub>)
- Formaldehyde (CH<sub>2</sub>O)
- Acetaldehyde (CH<sub>3</sub>CHO)
- Benzene (C<sub>6</sub>H<sub>6</sub>)
- Toluene (C<sub>7</sub>H<sub>8</sub>)
- Xylene (C<sub>8</sub>H<sub>10</sub>)
- Propene (C<sub>3</sub>H<sub>6</sub>)
- Butane (C<sub>4</sub>H<sub>10</sub>)
- Methanol (CH<sub>3</sub>OH)
- Methyl-ethyl-ketone (CH<sub>3</sub>C(O)CH<sub>2</sub>CH<sub>3</sub>)
- Formic acid (HCOOH)
- Acetic acid (CH<sub>3</sub>COOH)

*NMVOC's in biomass burning emissions we assume to be:*

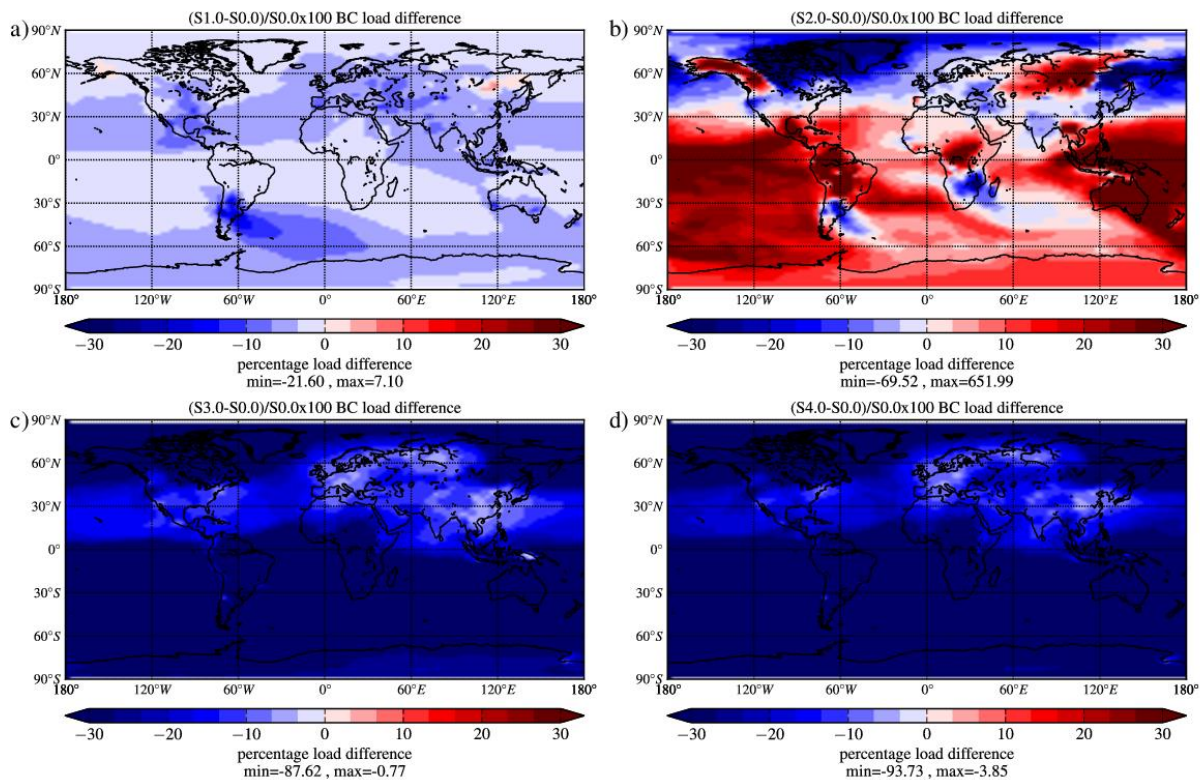
- Acetone (C<sub>3</sub>H<sub>6</sub>O)
- Etyne (C<sub>2</sub>H<sub>2</sub>)
- Ethene (C<sub>2</sub>H<sub>4</sub>)
- Ethane (C<sub>2</sub>H<sub>6</sub>)
- Propane (C<sub>3</sub>H<sub>8</sub>)
- Formaldehyde (CH<sub>2</sub>O)
- Acetaldehyde (CH<sub>3</sub>CHO)
- Dimethyl sulfide ((CH<sub>3</sub>)<sub>2</sub>S)
- Glyoxal (CHOCHO)
- Propene (C<sub>3</sub>H<sub>6</sub>)
- Butane (C<sub>4</sub>H<sub>10</sub>)
- Methanol (CH<sub>3</sub>OH)
- Methyl-ethyl-ketone (CH<sub>3</sub>C(O)CH<sub>2</sub>CH<sub>3</sub>)
- Toluene (C<sub>7</sub>H<sub>8</sub>)
- Xylene (C<sub>8</sub>H<sub>10</sub>)
- Benzene (C<sub>6</sub>H<sub>6</sub>)
- Formic acid (HCOOH)
- Acetic acid (CH<sub>3</sub>COOH)



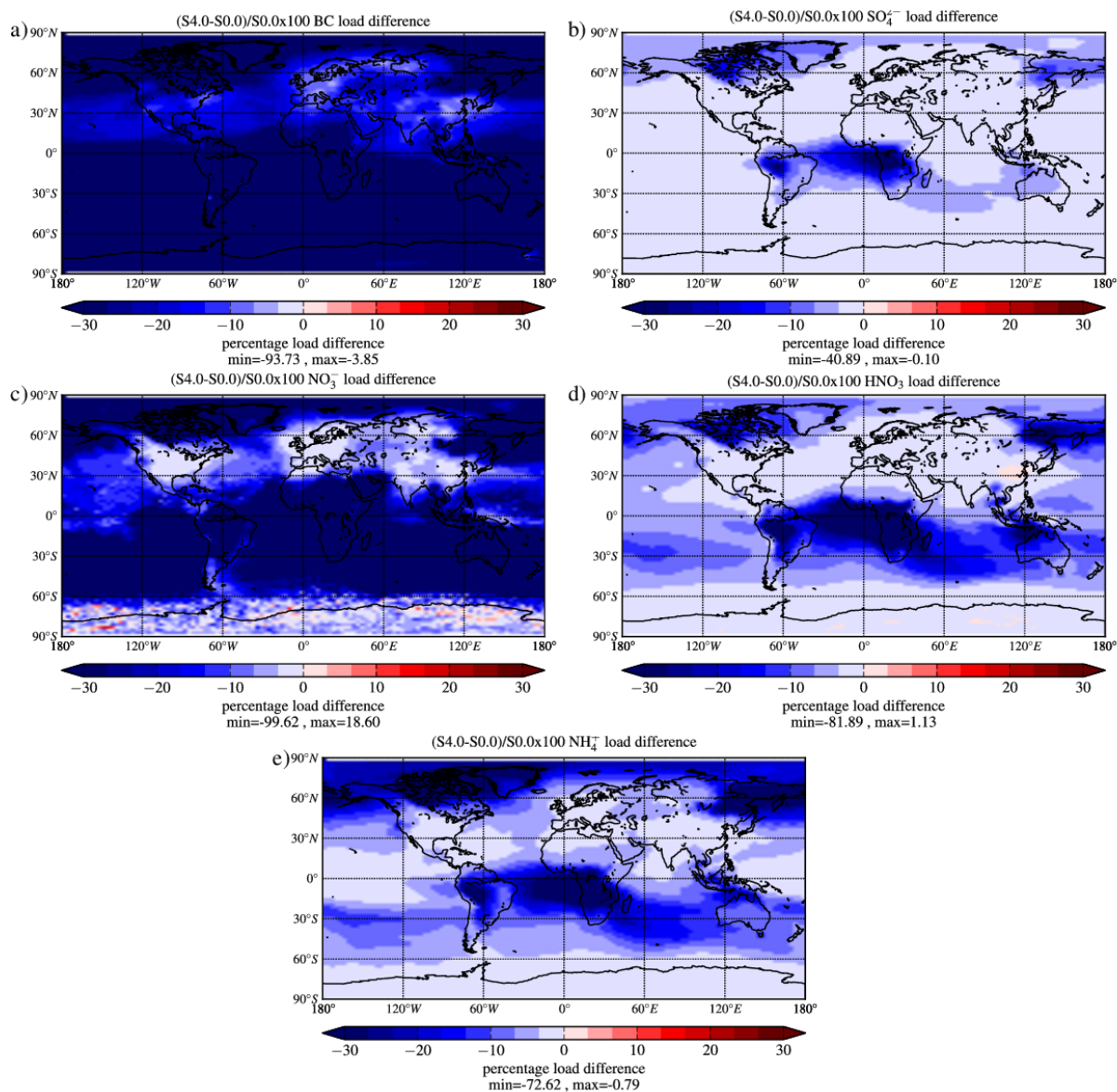
**Fig. S 1** Locations of measurements used for comparison with model results



**Fig. S 2** Calculated tropospheric load of selected species for the base case scenario of the model. Areas with black exceed the maximum value of the colorbar

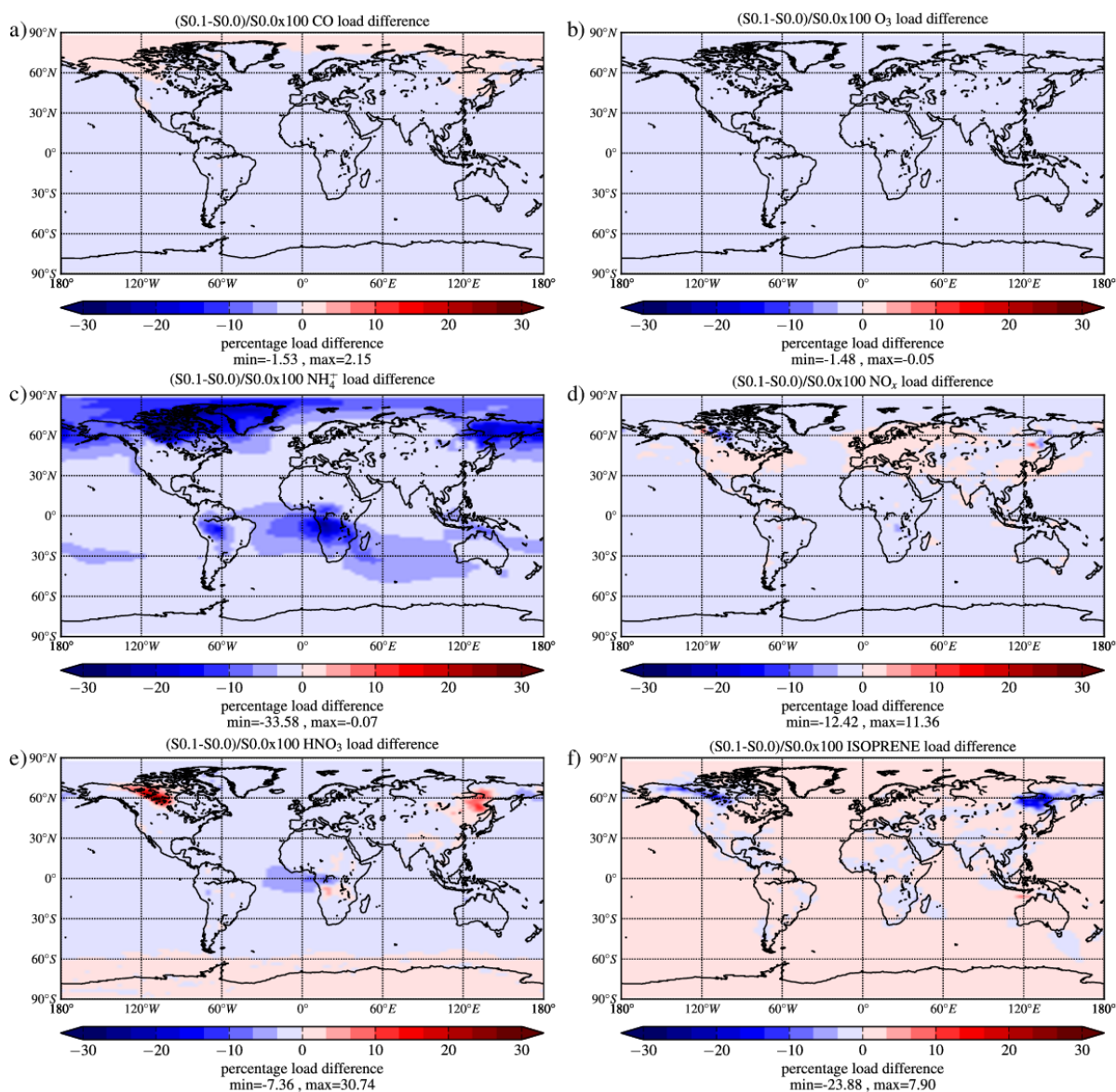


**Fig. S 3** Percentage difference of computed tropospheric load of BC for the different emission databases from the base case.

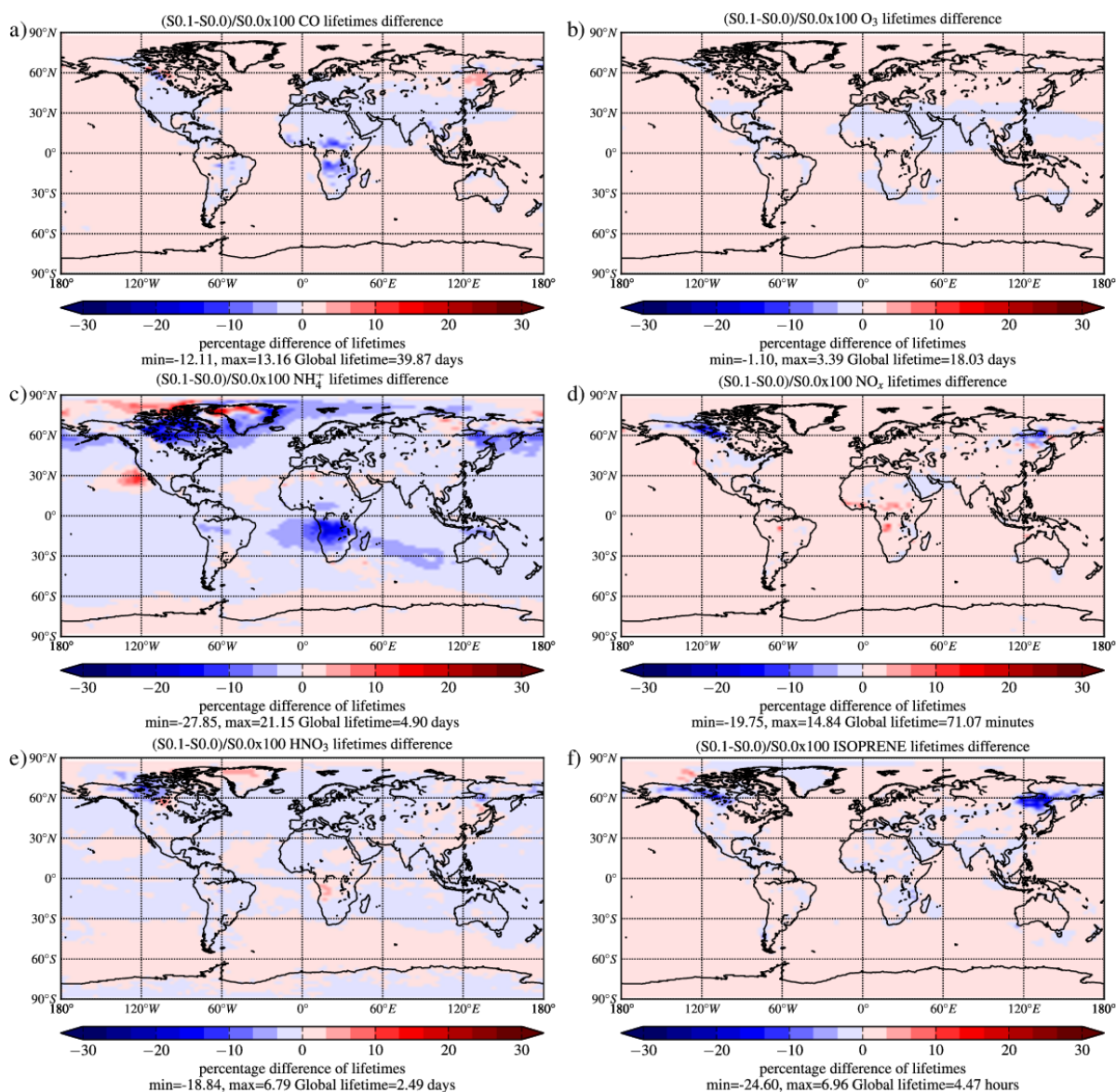


**Fig. S 4** Percentage difference on computed loads of BC (a), SO<sub>4</sub><sup>2-</sup> (b), NO<sub>3</sub><sup>-</sup> (c), HNO<sub>3</sub> (d), NH<sub>4</sub><sup>+</sup> (e) attributed to wild fire emissions. The scale is from -30% to 30%; minimum and maximum difference are printed under each panel.



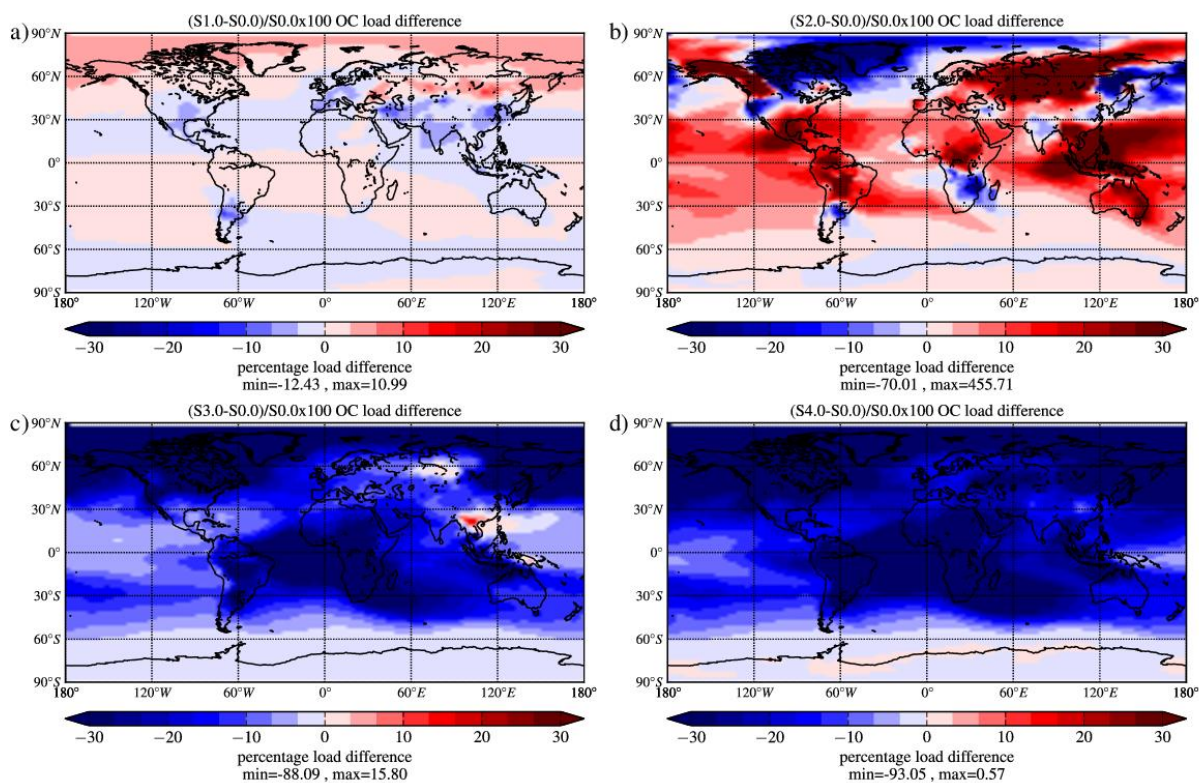


**Fig. S 5** Percentage difference of computed tropospheric load of CO (a), O<sub>3</sub> (b), NH<sub>4</sub><sup>+</sup> (c), NO<sub>3</sub><sup>-</sup> (d), HNO<sub>3</sub> (e), and isoprene (f) attributed to wild fire emission height injection. The scale is from -30% to 30%; minimum and maximum difference are printed under each panel.



**Fig. S 6** Percentage difference of computed tropospheric lifetime of CO (a), O<sub>3</sub> (b), NH<sub>4</sub><sup>+</sup> (c), NO<sub>3</sub><sup>-</sup> (d), HNO<sub>3</sub> (e), and isoprene (f) attributed to wild fire emission height injection. The scale is from -30% to 30%; minimum and maximum difference are printed under each panel.





**Fig. S 7** Percentage difference of computed tropospheric load of OC for the different emission databases from the base case.