

## ***Interactive comment on “Distributions, long term trends and emissions of four perfluorocarbons in remote parts of the atmosphere and firn air” by J. C. Laube et al.***

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### Author response

First of all we would like to thank you for your valuable comments which have helped to improve our manuscript. A table with trends, emissions and uncertainties inferred from the Cape Grim record was added to the supplementary information.

### Comment

Also for now, there is not a single emission number mentioned in the text, which I find a bit disturbing.

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### Author response

Quantitative information is now included in the discussion of the emission data:

“As displayed in Figure 8 for n-C4F10 and n-C5F12 we find that emissions continuously increased from 1978 (0.17 Gg/yr for n-C4F10 and 0.11 Gg/yr for n-C5F12), peaked in the mid 1990s (0.27 Gg/yr for n-C4F10 and 0.31 Gg/yr for n-C5F12) with a subsequent decline to 0.11 Gg/yr for n-C4F10 and 0.08 Gg/yr for n-C5F12. Please see the supplementary information for the complete numerical annual emissions data set.”

“In contrast we find reasonable agreement between the emissions of n-C6F14 from both approaches (Figure 9) with our estimates increasing from 0.16 Gg/yr in 1978 to 0.88 Gg/yr in 1997 followed by a decline to 0.23 Gg/yr in 2009. Finally, for n-C7F16 (also Figure 9) we find emissions increased from 0.08 Gg/yr 1978 to 0.23 Gg/yr in 2001 and stabilising at this rate thereafter.”

### Comments

p. 4083, l. 9, 'predominantly'. Can you quantify this? Suppl material: Title and one author's initial don't match main paper.

### Author response

At p. 4083, l. 9, 'predominantly' has been complemented by quantitative information: “(i.e. 99 %)”. Finally, the title of the supplementary information was corrected.

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