

## ***Interactive comment on “Bromine and iodine chemistry in a global chemistry-climate model: description and evaluation of very short-lived oceanic sources” by C. Ordóñez et al.***

**Anonymous Referee #2**

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This paper describes a parameterisation of natural oceanic sources of short-lived halocarbons and incorporates it into a global chemistry-climate model. The scheme includes a number of minor halocarbons which are not normally considered. The derived emission estimates are compared with previous studies and evaluated by comparing the model-predicted mixing ratios with surface and aircraft data.

Overall, this is a useful and well-written paper and I think it should be published in ACP. It provides new determinations of the short-lived halocarbon sources and improves the basis for including these in global models. I have a number of minor comments listed below.

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Detailed Comments:

Abstract. Line 9. You should make it clear that the emissions are constant within a region, but different between different regions. The text gives 90 degrees as the latitude limit but this is misleading as the sources will not extend that far (certainly not in the south). Can you find a better way of describing the high latitude band.

Abstract. Line 14. Change 'lower' to 'surface mixing ratio' to avoid confusion.

P. 27423. Line 18. Halons can also contain chlorine.

P. 27428. Line 16. Change '..three most short-lived..' to 'three shortest lived'.

P. 27431. Section 4.2. This section describes the development of the parameterisation scheme in words. Although the scheme is fairly straightforward it would be useful to summarise the final method in an equation which contains the chl-a parameter observed and the scaling (and any other) factors. This would make the work usable and reproducible by other modellers.

P. 27436. Line 12 and Table 3. Say in the table caption that these are your calculated lifetimes. Also, say in the text how you calculate them (I presume a lifetime weighted by the tracer distribution and not a simple average of loss rates).

P. 27437. Line 4. Typo CHB3.

P. 27439. Line 12. Typo CH2 BrCl (no space).

P. 27447. Line 29. 'but it cannot account'. This is not true. The surface boundary condition could easily account for a long-term trend if you ran the model for a multiannual period.

Figure 6. This plot is low resolution and should be improved.

Figures 7 - 10. It seems more logical to me to show the TTL panels in the top of the figure.

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Figure 11 Caption. Typo: H2ICI

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