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Interactive comment on "Marine sources of bromoform in the global open ocean – global patterns and emissions" *by* I. Stemmler et al.

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In this paper the authors apply existing biogeochemical models , together with published field data and climatologies, to address questions around the spatial and temporal variations in the concentrations and emission of bromoform from oceans. The work thus utilises a suite of previously published methods and data, to produce a substantive body of novel and scientifically pertinent data. These novel data are supported by a more than adequate range/quality of figure and tables and the quality of writing is generally good (with provisos noted below). Given these considerations it is clear that this work exceeds the standards required for a scientific publication in terms of Scientific significance, Scientific quality and the quality of presentation. I therefore recommend the work for publication subject to the authors adequately addressing the minor con-

cerns and typographical errors detailed below.

Page 15694 Line 24-25: "...volatile halocarbon and is one considerable source for reactive bromine species" is ambiguous and not well written, would suggest "... volatile halocarbonS and is a globally significant source OF reactive bromine species"

Page 15695 Line 4: The words "consequently on climate" as currently structured implies a much more significant and proven link with climate than the current data are able to substantiate. I would advise rephrasing to make it clear that this is merely a potential link.

Line 11: replace "only" with "relatively"

Line 15:25: I would suggest that the link between bromoperoxidase activity and cell growth is overstated here and conversely discussion of the demonstrated link between this enzyme's activity and oxidative stress is absent. Whereas, this omission by no means undermines the science presented (in phytoplankton the bulk emission of CHBR3 may well best correlate with the growth phase) it does however warrant discussion here. E.g. Pedersen, 1996.

Line 26: The reaction with DOM in seawater is presumably assumed to proceed via the haloform reaction and if so this should be explicitly stated.

Page 15696 Some acronyms used here are not defined.

Page 15700 Line 1: To help make the experimental easier to follow propose change to "Seven model experiments were....(table 1). Of these four ...."

The tense of in the document is muddled with consecutive sentence often switching between past and present e.g. "We conducted two joint experiments. In each experiment we eliminate the...". I am aware that it is no longer a requirement to write in the past perfect tense, but nonetheless at several points such as this, the switching makes the document unnecessarily difficult to follow.

Page 15703 Line 23: " However, there are some uncertainties related to the production and concentration of bromoform". This line is a truism (there are some uncertainties in all data) and in its current form adds nothing. Remove/rewrite.

Page 15704 Line 3: "As mentioned above, bromoform distribution patterns for the main part follow the patterns if primary productivity" This is rather ambiguous- do you mean in your model data or in the observational data presented here?

Line 11: "due to the setup" is colloquial and rather avoided, suggest rather "As a direct consequence of the experimental parameters"

Page 15707 Line 19-21: In this lines it is suggested that the satellite data is not capturing the conditions experienced. I would be interested to know if there was a precedent for this (and then cite it) or if this is purely speculative (in which case either acknowledge that its purely speculative or remove entirely)

Page 15708 Line 1: The double bracket is a little confusing, maybe a square bracket could replace one set should journal conventions allow.

References: Hughes 2013 paper refereed to in text is not listed in references. Figure 4: c&f are missing from caption. Figure 5: labels a-d would aid clarity.

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