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Interactive comment on “Bromocarbons in the tropical coastal and open ocean atmosphere during the Prime Expedition Scientific Cruise 2009 (PESC 09)” by M. S. Mohd Nadzir et al.

Anonymous Referee #2

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This paper reports atmospheric measurements of five bromocarbons in the Strait of Malacca and the South China and Sulu-Sulawesi Seas. Based on the results, the authors discuss the correlations among the bromocarbons and chlrophyll a, as well as the emission strength of CHBr₃ from South East Asian region. The measurements include some new data, but I found it lacking substantial new insights. I think the paper should be strengthened by more careful discussion.

Specific comments:

1. I would recommend the authors to add some discussion about CHBrCl₂ and

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CH₂BrCl, for which very few have been reported.

2. The emission-ratio estimates based on the “chemical decay line” and “dilution line” become reliable only when the data are sufficient in number and variable in degrees of reaction or dilution. The values from the intersection of the two lines in Fig.7 could be taken as “lower-limits” of the emission ratios rather than their best estimates.

3. The authors should refer to the paper by Ziska et al. (ACP, 2013) which has reported a global map of CHBr₃ and CH₂Br₂.

4. p. 955 line 10-11 “there was no significant correlation between bromocarbons and in situ chlorophyll a”. What does this finding suggest for the source of bromocarbons?

5. p.955 line 20-24 “we note that satellite-derived chlorophyll a (chl-a) products do not always agree well with in situ measurements, particularly in coastal regions of high turbidity, meaning that satellite chl-a may not always be a good proxy for marine productivity.” Isn’t there any possibility that seaweeds growing in coastal regions caused the difference between satellite-derived chl-a and in situ chl-a? What is the definition of “marine productivity” in this case?

6. p.967 line 6 “CHCl₃” Misspelling for “CHBr₃”?

7. p.967 line 13-16 “However, even filtering the satellite-derived chl-a for turbidities of less than 0.5 FTU, did not reveal any significant correlations with halocarbon concentrations (not shown). Similarly, there were no obvious correlations between the halocarbons and turbidity.” The plot of halocarbon vs. satellite-derived chl-a should be helpful for understanding.

8. p.967 line 16-23 “Although turbidity measurements in the Strait of Malacca (average of 3.3 FTU) were significantly higher than those in the South China Sea (average of 0.3 FTU; Table 1), coinciding with high CHBr₃, the turbidity was almost as high close to land near Semporna (average of 2.1 FTU for Stations 24–27), but. . . .” The paragraph needs to be clarified.

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9. Table 1 There is an error in the cited values (bottom row). The mean for CH₂Br₂ (1.3) is out of the range (0.2-0.5).

10. Figure numbering is confusing.

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