

1. Does the paper address relevant scientific questions within the scope of BG?

Yes. The authors addressed the challenge of source identification of biogenic bromocarbons in coastal water based on oceanographic procedure (water mass classification, phytoplankton identification, depth profile analysis, and diurnal variation analysis). The authors could not clearly identify the sources of bromocarbons in seawater because of marine environmental complexity, however, the analytical approaches are scientifically interesting. Therefore, I think that the content of this paper is relevant to BG.

2. Does the paper present novel concepts, ideas, tools, or data?

Yes. The authors analyzed the characteristic of bromocarbon concentration based on water mass classification (open ocean, recently upwelled water, and aged upwelled water). The oceanographic approach is needed for bromocarbon study. I think that the concept of this paper is novel.

3. Are substantial conclusions reached?

Yes. This paper demonstrated an interesting feature of bromocarbon distribution in coastal area. However, the authors could not clearly identify the sources of bromocarbon. As the authors related in the conclusion section, further studies are expected to make clear the sources of bromocarbon in coastal area.

4. Are the scientific methods and assumptions valid and clearly outlined?

Yes. The analytical methods for bromocarbon measurement and those for other environmental variables are valid and clearly outlined.

5. Are the results sufficient to support the interpretations and conclusions?

Some corrections and explanations are needed. I will point out them in specific comments as described below.

6. Is the description of experiments and calculations sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)?

Yes. The analytical technique used by this paper has been prevailed.

7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution?

Yes. The authors clearly indicated their original observation data, and they compared their original data with related previous work.

8. Does the title clearly reflect the contents of the paper?

Yes.

9. Does the abstract provide a concise and complete summary?

Yes.

10. Is the overall presentation well structured and clear?

Yes.

11. Is the language fluent and precise?

Some corrections are needed.

12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?

Yes.

13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?

No.

14. Are the number and quality of references appropriate?

Yes.

15. Is the amount and quality of supplementary material appropriate?

Yes.

## **General comment**

In the open ocean, the concentration of  $\text{CHBr}_3$  in surface seawater comes close to the equilibration level with respect to the air. The equilibration level depends on sea water temperature. Therefore, the authors should mention the saturation level of  $\text{CHBr}_3$  in seawater with respect to the atmospheric  $\text{CHBr}_3$  level. I guess the seawater  $\text{CHBr}_3$  levels near the coast (of this study area) are highly saturated with respect to the air. So, even if the authors did not measure the  $\text{CHBr}_3$  concentration in air, I believe that the authors can assume the atmospheric  $\text{CHBr}_3$  concentration and the saturation level.

## **Specific comments**

### **Page 8664, Line 25 “from the marine boundary layer to the atmosphere”**

In atmospheric science, “marine boundary layer” means the “marine boundary layer air”, which is from the sea surface (0 m height) to the boundary of free troposphere (about 500-1000 m height).

So, I think that “from the ocean surface to the air”, “from the ocean surface layer to the marine boundary layer air”, or other descriptions is appropriate.

### **Page 8666, Line 5 “Pourquoi pas?”**

Is “?” a garbled character?

### **Page 8666, Line 12 “nutrientconcentrations”**

“nutrient concentrations” Space is needed. It may be a garbled word.

## **Section 2.3. Analysis of volatile**

The authors should indicate the purge efficiency of bromocarbon.

**Page 8671, Line 4 “the clustered data set was additional divided into two groups”**

Is “the clustered data set was divided into additional two groups” correct?

**Page 8671, Line 4 “upper layers: surface to maximum of chlorophyll”**

“surface ” means a depth (surface depth) or a layer (surface layer).

“maximum” means a value (maximum value) or an inflection point.

So, I think that “upper layers: surface to chlorophyll maximum layer depth” or “upper layers: surface layer to chlorophyll maximum layer” is appropriate.

**Page 8672, Line 19 “Fig. 4a”**

Is “Fig. 5a” correct?

**Page 8673, Line 2-4 “Daily variances ----layer samples.”**

It seems sudden or confusing to introduce “daily variances”. How about adding an explanation for the bars (variables in Fig.5) that show daily cycles of bromocarbon concentrations.

**Page 8673, Line 6 “The highest total chl-a”**

What does “total” mean?

**Page 8673, Line 11-13 “At station 4, bromocarbon values were lower that average upwelling concentrations”**

Is this sentence grammatically correct?

Is “At station 4, bromocarbon values were lower than average upwelling concentrations” correct?

If “At station 4, bromocarbon values were lower than average upwelling concentrations” is correct, does it mean “At station 4, bromocarbon values were lower than the mean values of recently/aged upwelled water (Table 1)”?

**Page 8674, Line 21-23 “However, ---- values were significantly lower the off Mauritania coast.”**

Is this sentence grammatically correct?

Is “ However, ---- values were significantly lower off the Mauritania coast.” or “ However, ---- values were significantly lower than the values off the Mauritania coast.”

In addition, is “lower” mistake? Or, is “higher” correct?

**Page 8676, Line 22-26 “Correlations were highest to fucoxanthin (variable 8), chl-b (variable 5), as well as Chl-c3 and 19'-hexanoyloxyfucoxanthin (variables 7 and 11).”**

Correlation coefficient of  $\text{CHBr}_3$  in open ocean water for variable 5 (red) is not shown in Fig.6.

Correlation coefficient of  $\text{CHBr}_3$  in open ocean water for variables 6, 12, 13, 14 are also high.

Why the authors said that the specific plankton groups (variables 5, 7, 8, and 11) might have played a key role in the biological production.

And, why the all plots for correlation coefficient are not shown in Fig.6?

**Page 8679, Line 25-26 “ from the coast, the sampling location (Marta-Almedia and Dubert, 2006) and cannot explain the --- ”**

Is “from the coast, and the sampling location (Marta-Almedia and Dubert, 2006) can not explain the --- ” correct?

**Page 8681, Line 13-14 “including natural production by macroalgae and anthropogenic sources”**

The authors implied anthropogenic influence on bromocarbon in coastal seawater. If there are some detectable anthropogenic influences of bromocarbon on coastal water, the source regions (river) should be extremely polluted. Are there any reports for trihalomethane pollutant? I think that the authors can deny the possibility of anthropogenic influences referring some environmental reports.