

## Comment from the Editor

*I do not consider all of referee #1's "specific comments" to be answered. This applies to Ln28-33; Ln161; Ln216ff; Ln266; Ln277; Ln314; Ln407; Ln458; Ln460. Please respond to these comments, which are not simple corrections but comments on the content of the text passages.*

## Answer to Editor

Indeed our answers to these specific comments from the first reviewer were quite short. We did modify our manuscript accordingly, but these information were not stated clearly. Hereafter we will expand on our answers and how we modified the manuscript.

**Comment:** « *Ln 28-33: the paragraph seems a little out of place and focus. It is neither a full description of the working region, nor a broad overview. Add a sentence on the importance of the AMOC for the interhemispheric exchange, connecting the tropical South and North Atlantic, and the role of NBC rings. Give references (the only reference to a paper on the region is given in line 290, which is out of place as well). A map with currents would be helpful as well. The division in two regions "east of Barbados" and "to the south" is not conclusive either, what about the rest of the box in Figure 1 (north and west of Barbados)? »*

**Answer:** This paragraph has been removed to be replaced by a more complete description of the region. It can be found from line 29 to 45 of the corrected version of the manuscript. A statement has been added on the inter hemispheric exchange, with also a citation from Johns (Elsevier Oceanography Series, 2003). We have also modified Figure 1 to add a schematic representation of the main surface currents of our two subregions of interest, represented with two boxes instead of one. Moreover, we have specified which R/Vs cover these subregions.

**Comment:** « *Ln 161: I guess there were also two SBE4 sensors? Please clarify. »*

**Answer:** Indeed it was two SBE4 sensors that were mounted on the CTD rosette. This has been add in the corrected manuscript (line 192).

**Comment:** « *Ln 216 ff: What about Meteor? Did the Meteor CTD measure oxygen, with one or two SBE43 sensors? What happened to the data? »*

**Answer:** We have added information on which R/Vs measured oxygen. These modifications can be found lines 242 and 252. Only the R/Vs L'Atalante and Maria S. Merian measured oxygen, no measurements nor samples were collected for the R/V Meteor.

**Comment:** « *Ln 266: does this statement refer to all measurements described in this subsection or to PAR sensors only? »*

**Answer:** This statement applies to all measurements, it has been corrected line 295.

**Comment:** « *Ln 277: I do not understand why the positioning of the CTD station was different. Please explain. »*

**Answer:** The posting of each CTD station is defined differently. From IFREMER it is defined as the location and time of first measurement, while for GEOMAR it is defined as on average over the period when the CTD is deployed. This statement can be found from line 306 to 308 of the corrected manuscript.

**Comment:** « *Ln 314 ff: what about Meteor? Were water samples taken and analyzed? »*

**Answer:** It only concerns the R/Vs L'Atalante and Maria S. Merian. Thanks to the reviewer's comments, in the corrected manuscript, we have clearly specified which R/Vs are concerned,

mainly in Section 3.1.1, but also in all the text. The R/V Meteor was calibrated by comparing its measurements with close-by dedicated CTD profiles performed by the R/V Maria S. Merian (Lines 349-351).

**Comment:** « Ln 407: what was the cut-off frequency? »

**Answer:** The cut-off frequency is 0.2Hz (Line 457).

**Comment:** « Ln 458: "all were equipped with Seabird CTDs" contradicts line 448 (Kraken). What are the uncertainties for the IFM and UEA gliders? »

**Answer:** Indeed, we corrected the text. While the Kraken was equipped with a GPCTD (pumped), the IFM and UEA ones were equipped with SBE41 (unpumped) CTD (Line 510). IFM gliders have uncertainties of 0.1°C, and  $4 \cdot 10^{-2}$  psu, and the UEA ones of 1.8  $10^{-1}$ °C and 7  $10^{-2}$  psu. These information can be found in the strongly modified paragraph between lines 522 and 536, as well as in Table 1.

**Comment:** « Ln 460: "some devices" – please specify which devices. »

**Answer:** This sentence was removed from the manuscript to specify that we were mentioning the Kraken glider.