

## ***Interactive comment on “Atlantic Ocean CARINA data: overview and salinity adjustments” by T. Tanhua et al.***

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We thank the reviewer for carefully reading the manuscript and for coming with suggestions on how to improve upon it.

We changed the wordings in the end of the introduction and in section 2 to make it clear to the reader at an early state what the distinction is between CARINA and CARINA-ATL.

We made clear in the first sentence of the introduction that the Southern Oceans means circumpolar. However, for this study only the Atlantic Ocean is covered (south to about 30S), so none of the Southern Ocean is really covered in this study (although five of

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the cruises are in common with the Southern Ocean region).

The crossover for salinity is made on pressure surface since salinity is directly affecting the density, i.e. an offset in salinity would distort the density surface on which it is compared. For all other variables, density is the preferred unit to compare values on. This is described in detailed in the method paper by Tanhua et al. (2009), and the method discussion in this paper is kept short on purpose. Never the less, we did add a sentence regarding the choice of pressure surfaces for this analysis.

P245, line 11: We did not do this change because changes were also made to CTD salinity values in some instances. The beginning of section 4 deals with the issue of distinction between bottle salinity and CTD salinity. P245, line 21: The term ctdsal really refers to the parameter name used in the data product for CTD salinity. We agree that we used the two terms inconsequent in the manuscript. We now use ctdsal in the text, but note on line 21 that this is the same as CTD salinity.

#### References:

Tanhua, T., van Heuven, S., Key, R. M., Velo, A., Olsen, A., and Schirnack, C., 2009. Quality control procedures and methods of the CARINA database, Earth System Science Data Discussions, 2, 205-240.

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