

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

### **Anonymous Referee #2**

Received and published: 4 December 2009

The manuscript is the overview of the CARINA project and description of salinity adjustments to the bottle data.

A major comment of the overview is that the distinction between CARINA (CARBON IN the Atlantic) and CARINA\_ATL is not clearly stated when the subset of Atlantic data is first introduced (see page 246 lines 6-12 and lines 14-16). It is stated latter in the paragraph that the Atlantic region of CARINA is loosely defined as the region between Greenland-Scotland Ridge and 30S but this after the reader is questioning the distinction between the two terms. I would also suggest referencing Table 1 and figure 1 when introducing the distinction between CARINA and CARINA-ATL.

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In the first paragraph the manuscript states CARINA includes “hydrographic cruises from the Arctic, Atlantic and Southern Oceans.” Does the CARINA project include the complete circumpolar Southern Ocean or only the Atlantic sector of the Southern Ocean? The manuscript need to clearly state and latitude and longitude boundaries of the Southern Ocean sector considered by this study.

Page 248 line 24-25. I was surprised that cross-over comparisons were performed on equal pressure surface and not on density surfaces. Is this best practice? Does this account for some of the difference between the method applied in this project and previous cross-over analysis (Gouretski and Jancke, 2001)? I am not an expert in cross-over analysis but some discussion on the merit of pressure based offset corrections in needed.

### Minor Comments

P245 line 1 insert bottle - . . . of carbon and carbon-related BOTTLE data.

P245 line 11 insert bottle and then state the bottle salinity in referred to as “salinity” in the manuscript. Change “. . . consistency analysis of salinity for this data set.” to “. . . consistency analysis of bottle salinity (hereafter salinity) for this data set.”

P245. line21 uses the term “ctdsal” and P246, line 3 uses “CTD salinity”. Be consistent with usage. My preference is CTD salinity.

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Interactive comment on Earth Syst. Sci. Data Discuss., 2, 241, 2009.

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