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Earth System Science Data Discussions

Interactive comment on "CARINA alkalinity data in the Atlantic Ocean" *by* A. Velo et al.

Anonymous Referee #2

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GENERAL COMMENTS

The authors describe the quality control procedures performed in order to put together the alkalinity section of the CARINA database. This dataset represents a very useful contribution to the scientific community. The quality checks seem thorough and the cruises have received individualized attention to assess the adjustments to apply in each case. The methods are described in detail and results are well justified. The subjective decisions on the final adjustment values used for the cruises are based on enough information for them to be realistic. All this provides enough information for the future user of the dataset to be able to work with it with confidence. I recommend this article be published after minor revisions.

SPECIFIC COMMENTS

Introduction: P140, 23: Calculated and interpolated values are given the same flag.

Does this mean that it won't be possible to separate one from the other? I think it would be useful to be able to distinguish them. With derived values you can have an idea of the error you are working with whereas with interpolations this is less straightforward.

P140, 25: I cannot see Table 2. Do the authors mean Table 1?

Data Provenance: P142, 14: I suggest a one-line description of what the first QC consists of. P142, third paragraph: I find this a bit hard to follow, with the number of stations going up and down. After the 2nd QC the results are applied on less cruises than available after the 1st QC, yet the total number of stations has increased. Please rewrite this to make it clearer.

Results: P146, 13: I don't see bold types in the table. P147, 7: I suggest moving lines 10 and 11 here (numbers indicate Carina identifiers)

Cruises: Information is provided concerning the location of some but not all cruises. The same is true regarding for example the number of stations sampled. This looks a bit random.I would add a reference to where info on the location of each cruise can be found and/or add a global map for the cruises. Including the number of the figure for each cruise in the text would facilitate the search for individual cruises.

Cruise 64: you mention OACES93 and A16N2003. Are these cruises used for crossovers? If they are shown in the plot, I cannot identify them from the Carina ID or expocode used.

Cruise 188: P153, 1: "There are many uncertainties". This is a vague sentence. Which ones? The suggested adjustment is 8 μmol/kg. There are many uncertainties and 3 core cruise crossovers suggest a larger offset. This looks somewhat contradictory evidence to simply use the initially suggested adjustment.

Data quality evaluation: P154, 2nd paragraph: actually it is not easy to see that residuals are smaller when using the corrected database. I agree with the other reviewer concerning the use of MLR as a means to assess the quality of the data per se, al-

though it gives a good idea of the internal consistency of the dataset.

Figures: Figures 7-22: I suggest adding the Carina ID number after the Expocode. Figure 23 is very dense and hard to read. Many times it is very difficult to even see the original residuals. Also, what's the point of providing the ID for the cruises if there is no reference anywhere that tells the reader to what cruise it corresponds?

TECHNICAL CORRECTIONS

I suggest some small corrections concerning the use of English and typoes in the MS.

P140, 8 to 12: consider rewriting ("consists of" appears 3 times in 4 lines). P140, 26 "than has been" should be "have been". P141, 9: "of the carbon dioxide CO2 system" . CO2 between parenthesis P141, 24: derived from P142, 28: "assess of the quality". Eliminate the "of" P148, 6: "fits" should be "fit". P148, 6: "keep inside": rephrase. P148, 14: "shows" this should be plural. P149, 18: "between". Maybe within would be better. P150, 22: There are two full stops together. Eliminate one. P153, 12 and 24: The use of attend is incorrect (false friend)

Interactive comment on Earth Syst. Sci. Data Discuss., 2, 137, 2009.