

Interactive comment on “Quality control procedures and methods of the CARINA database” by T. Tanhua et al.

Anonymous Referee #3

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The authors report methodologies used in preparing the Carbon in the Atlantic (CARINA) ocean carbon data set. This CARINA project itself is important because it not only brings together for researchers the known ocean carbon-oriented data from the Atlantic and Arctic regions from diverse and sometimes nearly-inaccessible sources, but also attempts to place those data onto a common reference footing. The authors attempt to reconcile "significant biases found in the data", and present information regarding public availability of all significant aspects of the project, including the reconciled data. This effort must be published and preserved.

It is not necessary to review the rationale of the project itself. All involved, including the reviewer, know that it was desperately needed.

The reviewer commends the CARINA team for leaving the original data intact (e.g., p. C129

209, line 6) and presenting the altered data only in special data tables. This will help to distinguish the data product (the CARINA data) from the original data files.

The primary quality control features were well formulated.

The crossover analyses appear to have been carefully and properly considered. In fact, the whole procedure comes across as so objective that many readers will be little aware just how much subjectivity goes into these analyses, but that is of little concern in terms of this review. The discussion of the time factor (p. 221) is both important and mildly disappointing. The issue of real ocean changes over 30 years is important. Perhaps not enough is known (for example from models) regarding regions and/or water masses which are thought to be sensitive to environmental changes to have made a useful guess at actual time factors which differ from place to place? Inclusion of a variable time factor would have complicated the analyses but perhaps have improved confidence in the comparisons. That said, the team's arbitrary allowance of greater offsets from "variable" areas (p. 221) is acceptable.

The authors' problems reconciling silicate data values between cruises are not surprising, at least away from Southern Ocean water masses, because Atlantic-origin waters have low silicate concentrations in general, with small measurement signal-to-noise compared with Pacific- and Southern-origin water masses.

There is little else to note, except that the Editor should pay careful attention to comments from reviewers experienced in the mathematical and computational methods employed by the authors.

As noted above, this work must be published and preserved.

Miscellaneous comments

p. 209, line 4: There should be a reference (URL, for example) to a description of the "WHP exchange" format. (A quick search suggests that a reference document is available on line.)

- p. 211, line 12: Eliminate "a" (third word in line)
- p. 214, line 13: change "preformed" to "performed"
- p. 217, line 8: change "paragraphs" to "paragraph"

Interactive comment on Earth Syst. Sci. Data Discuss., 2, 205, 2009.