

Interactive comment on “Measurements of total alkalinity and inorganic dissolved carbon in the Atlantic Ocean and adjacent Southern Ocean between 2008 and 2010” by U. Schuster et al.

Anonymous Referee #1

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This is a well written and informative paper that carefully describes the carbonate system measurements carried out during 4 UK-operated cruises during the time from 2008 through 2010 in the Atlantic Ocean. The scope of the paper is suitable for publication in ESSD and I do recommend publication after minor revision, see below.

Section 4.2; 2nd level QC: I cannot see anywhere what the result of this analysis is presented. 2nd level QC is generally an useful way of establishing the accuracy of the data, and the authors have done so by both comparing to CRMs and by carrying out a cross-over analysis. Please state the results of the crossover analysis in the form of potential biases in any of the measured parameters. It would also be useful to establish

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the connection to GLODAPv2 here and make sure the GLODAPv2 team have the same suggested adjustments as the authors of this study.

Technical comments: It is usual to use the name of a cruise in the form of ship and cruise number; i.e. DI364 etc. However it is also a practice to use the so called expocodes for unambiguous identification of a specific cruise. The expocodes are listed in Table 1, but I would suggest referring to the expocode also in the initial table “Data coverage and parameter measured”.

Figure legend 1: Please be consequent in referring to the various sections. Now it is a mix of references to latitude, project name or WOCE section-name.

Table 1: The names Arctic Gateway and Drakes Passage are not really “nominal latitudes” It is not spelled out (clearly) in the manuscript, but I assume that the values in table 3 are the adjustments applied to the data in the 1st level QC. Please make this clear.

Page 631: The sentence “Corrective adjustments are only considered when offsets are greater than $4 \mu\text{mol kg}^{-1}$ for DIC and $6 \mu\text{mol kg}^{-1}$ for TA (Wanninkhof et al., 2003) and the mean offsets for the DIC and TA data were below these thresholds” is a bit out of place since the authors do not apply any adjustments, but can possibly suggest that there is a bias in the data. As I understand this, the data products like CARINA can apply adjustments to the data whereas the data reported here are not subject to any crossovers based adjustments (but adjustments based on CRM measurements). Also, those lower limits of adjustments were used in CARINA, but might not apply to GLODAPv2.

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