

Interactive comment on “CARINA: nutrient data in the Atlantic Ocean” by T. Tanhua et al.

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Received and published: 23 October 2009

We added a sentence to section 3 regarding the use of the N:P ratios in the secondary QC: A N:P ratio very different from 16 (Redfield et al., 1963), or with an intercept very different from 0 was taken as an indication of a bias in one, or both, of the two nutrient measurements.

We now discuss the influence of variable hydrography: Nutrient values in the deep water of the Atlantic Ocean are influenced by hydrographic variability. Variations in the contributions of water masses originating in the south or the north are of great importance, the southern end member particularly having higher concentrations of silicate. The Mediterranean outflow also has different nutrient concentrations compared to the Atlantic water in the same density range. Water samples in areas prone to variations

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in Antarctic Bottom Water and/or Mediterranean Water are therefore somewhat more difficult to apply adjustments to. This was taken into consideration during the secondary QC process and larger offsets were generally tolerated before an adjustment was applied in areas affected by this variability (e.g. Tanhua et al., 2009a).

We agree that the adjustment applied to the phosphate data of cruise #25 (1.25) is very large. Although we did not have a formal upper limit for adjustments that can be applied to a cruise, adjustments of this magnitude is unusual, and would normally result in flagged data so that the data are not included in the data product. In this special case (cruise #25), the phosphate data have a very consistent offset vs. several other cruises, so that the CARINA group agreed to apply this large adjustment rather than to flag the data.

Data that are labeled “NC” in Table 1 are included in the data product. This is now mentioned in the caption to Table 1.

We have added a short summary section to the paper: This report describes the secondary QC of the nutrient data for the Atlantic Ocean part of the CARINA data base. Out of a total of 188 cruise entries in the CARINA database, 98 were conducted in the Atlantic Ocean and of these 84 cruises report nitrate values, 79 silicate, and 78 phosphate. Adjustments were applied to 17 of the cruises for nitrate, 25 for phosphate, and 16 for silicate. Where no adjustment could be determined, this was most commonly due to sparse data coverage, and applied to 15 of the cruises for nitrate, 11 of the cruises for phosphate, and 12 of the cruises for silicate. Data were flagged as poor, i.e. data are not included in the data product, for 2 cruises for nitrate, 6 cruises for phosphate, and 2 cruises for silicate. Based on our analysis we estimate the internal accuracy of the CARINA-ATL nutrient data to be: nitrate 1.5%; phosphate 2.6%; silicate 3.1%.

The Technical comments were taken care of.

Interactive comment on Earth Syst. Sci. Data Discuss., 2, 63, 2009.

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