

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

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In their manuscript “CARINA alkalinity data in the Atlantic Ocean” A. Velo give a detailed description of the secondary quality control on this part of the data set as part of a special issue on the CARINA data. The manuscript is clearly written and provides potential users with the necessary information to assess the adjustments made to the data set during secondary quality control. This review is written from the perspective of a potential user and does not contain a rigid check of the methods used. I recommend publication of the manuscript after the following points have been attended to and would welcome comments by an additional reviewer who can provide more detailed technical feedback:

1 Introduction:

It may be an idea to switch p.140, line 2 – p.141, line 4 and p.141, line 5 – p.141, line 22.

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This way you would give the basic scientific motivation first and finish the introduction with a summary to the structure of the paper.

## 2 Data provenance and structure

The first paragraph on the salinity-alkalinity relation ship seems a bit random in this context. If you would like to keep it, moving it to a later point in the paper may be an idea.

What I would like to see as a potential user in this section is a map summarizing the distribution of the available observations. I realize that this information is available on the CARINA website, but it would make the manuscript more user-friendly.

p. 142, line 19: the number of station increases from 4580 after 1st QC to 4696 stations after 2nd QC – is the second number correct?

p. 142, line 21-24: you split 51 cruises into 31 with and 21 without CRMs . These don't add up?

## 4 Results

p.146, line 3: There are no data from the Arctic in Table 1.

## 6 Data quality evaluation

You use an MLR fit to evaluate the quality of the data set. So essentially you evaluate your data against a very crude, linear statistical model that in addition is heavily dependent on your data. While I can see the idea behind this approach, I have doubts that it is a very good indicator of data quality. If you insist on using it you need to make the limitations of the approach very clear. However, the scatter plots against salinity presented earlier could possibly be fitted into this section.

There is a manuscript on Nordic Seas alkalinity by Are Olsen that is also part of the special issue on the CARINA data set. Some reference to this manuscript and discussion of your results in relation to the Nordic Seas part of the alkalinity data would be

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useful.

## Figures

Fig. 5: WL in the second line of the caption should be WM.

Fig. 6: Mark which axis represents original and which post-adjustment offsets on the axes.

Fig. 7-22: The yellow correction lines are really hard to see. It may clarify the plots if you plotted them as offsets rather than corrections, i.e., opposite sign, to show how they fit with the individual values. Small maps to indicate the location of the cruises would also be useful.

Fig. 23: This figure is quite busy and has some very small writing on it. It is also unclear what the vertical extent of the red and blue boxes and the error bars represent.

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

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