**Earth System
Science Data
Discussions**

Interactive comment on "Nordic Seas total dissolved inorganic carbon data in CARINA" *by* A. Olsen

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I would like to thank the reviewer for the comments, these help me to clarify my manuscript. Below I go through the comments one-by-one. The comments are given in italics and my response in normal font.

Page 183, Table: there are three parameters which have different names (day month year) in the data product and the same name – DATE – in the exchange file. Is it correct?

This is correct, the DATE parameter of the exchange file contains the year, month and day as YYYYMMDD. To clarify this I will in a footnote, which will be added to the table.

Pge 187, Lines 8ff. Please, specify why the level of 1900 dbar was selected as an

upper boundary for the sample depths to be analyzed. Also, page 188, Lines 10ff. I assume, the natural variability is low below this depth, but a bit more quantitative description would help more than a simple link to another paper by A.Olson.

1900 dbar was chosen as the upper boundary for analysis of deep data since ventilation has reached depths of 1600 dbar in the time frame covered by the CARINA data. True, 1600 dbar is not as deep as 1900 dbar, but I chose 1900 dbar to be on the safe side. I will include an explanation of why 1900 dbar was chosen, in the revised version

Page 187, Lines 11ff. The spread of the data is explained both by time and spatial variability in the data. The data within the cross-over area a not simultaneous.

Table 2 – which this comment refers to - shows the standard deviation of data below 1900 dbar at each cruise. The cruises are normally carried out within a month. I do not expect much time variations below 1900 dbar over a month, and so ascribe the spread as being due to spatial variations and precision. I tend to believe that this comment relies on a misunderstanding from the reviewer's side, and will clarify in the text what these numbers are.

Page 189 Lines 9ff. Indeed, Fig.2 indicates the deep TTO data being 4umol/kg lower than for 316N and 58GS. On the other hand, cruises 135-58JH and 137-58JH are even more biased (positively), and cruises 135-58JH and 176-74JC are biased below 8umol/kg. For this reason, the straight line drawn to show a long-term change since the TTO time frame is not very persuasive, it is rather misleading. I also suggest to change colors of the data points for Fig.2, as black and deep-blue are not easily distinguishable from each other. One could use green instead of blue, for instance.

I agree with the reviewer that the line drawn in Fig 2 can be misleading. In the revision I will remove this line from the figure. The possibility of a long-term trend in the data is anyway fully treated in the text. I will also replace the deep blue color with a yellow, to make the different data series more distinguishable.

The data caption for this figure should explain what the vertical bars mean.

The vertical bars are the uncertainty of the corrections determined through the WLSQ inversion of the crossover offsets, calculated following Johnson et al. (2001), this information will be included in the caption.

Page 198. Table. Give units for TCO2 standard deviation

This is μmol kg^{-1} and will be given in the column header.