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Earth System Science Data Discussions

Interactive comment on "Nordic Seas and Arctic Ocean CFC data in CARINA" *by* E. Jeansson et al.

Anonymous Referee #2

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Remarks (A) The paper should be published after considering the reviewers' comments. (B) The revised version should be made available again to the reviewers. (C) The editor(s) of ESSDD are invited to consider my last remark on policy matters.

Summary comments The authors publish a data set to receive proper recognition in the reviewed literature. To make it thus available is applaudable. In setting QC measures they refer almost exclusively to the parameters they measured, which is CFC data. There is some implicit reference to the other parameters that are normally measured along with CFC data. All these data are taken from sea water samples, or calibrated against sea water samples. It is, though, not clear how these data have been used to ascertain the quality of the CFC data, or discuss possible significant variations due to different water masses present in the profile, or region. Keeping the discussion to

the parameters they measured avoids discussing their data with those PIs that did the other measurements. That is regrettable.

(1) Although lines 21 – 25 refer to the CARINA data base there is no reference to the QC standards and procedures for the other parameters. There is only a reference to the WHP exchange format (line14). There is nevertheless a WHP Manual and accepted standards, so a reference to the quality of the "ancillary data" would have been helpful. Depth or pressure is not referred to, so is it unimportant? And there is no statement on the precision or accuracy of the CFC data ! (2) The description of the crossover analysis is fine (chap 4), nevertheless it could have been used to review the relationship with the other parameters measured. (3) The depth profiles (fig. 2 cont'd) for some cruises show a wider scatter in parts of the profiles. This is used to argue time effects (5.1 18HU19829228) or group decisions (5.3 34AR19970805), or linking it to surface saturations arguments (58GS20030922). For (77DN20020420) there are only arguments left about "some problems) that are not detailed. (4) To make life easier and avoid the need to crack the expo-code table 1 should have one separate column with the year of the cruise.

So mostly the quality argumentation is internal to the CFC data set; if technical arguments do not hold the argumentation gets close to hand-waiving. Almost all cruises that show larger variations in the parameter, property-property plots or against depth levels are in regions with strong salinity and temperature gradients or variations because of the regional highly variable composition of water masses of polar, subpolar or even Atlantic origin. For a serious discussion I would have thought that using the "ancillary parameters" the discussion would have first focussed on the possible regional and temporal variations. There are ample publications on the hydrography of the Greenland Sea, Fram Strait, the Arctic Ocean or the Greenland-Island-Scotland Ridge that will be helpful to make that final decision that the CFC data set in part has technical problems.

For consideration

I suggest to the authors to consider this additional analysis and argumentation.

From ESSDD announcements I see that other parts of the CARINA projects are being presented. AS a simple reader of this paper under review should O read all the others or can't the authors give some key findings on the contents, quality, and relevance of the other parts of the CARINA data sets?

The editors might also consider how the objectives of ESSDD to provide a reference platform for scientific data sets can be better focused to avoid single data set presentations that obviously are not in the context of what essentially is physical oceanography. It is about measuring a parameter in sea-water! No regional, no temporal, nor hydrographical background is used.

Interactive comment on Earth Syst. Sci. Data Discuss., 2, 493, 2009.