

Interactive comment on “Measurements of the dissolved inorganic carbon system and associated biogeochemical parameters in the Canadian Arctic, 1974–2009” by K. E. Giesbrecht et al.

Anonymous Referee #2

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General comments

This paper describes sea water carbon chemistry data from various Canadian Arctic research projects in the past. It is a commendable effort to assemble the data and conduct primary quality control on the collection. The work on the data collection,

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history and methods, is well documented. Only few notes are added below. The tables and figures are clear and informative.

It is quite remarkable to have possibly reliable data on DIC and Alkalinity from as long ago as 1974–1975. Here is data on a fraction of the samples which had been stored at 4°C from 1974 until analyzed in 2001. Other remaining samples from this period are said still to be viable for analysis. This reviewer feels it important that the remaining samples be analyzed and that the quality of the samples after the long storage be better assessed. Would salinity determinations indicate that the samples are unaffected by evaporation? If not, could a correction be applied? Subsequently the data from the BSP 1974–1975 samples could be added to the data files.

On page 237 the flagging procedures are described and they are compared with those used for the GLODAP and CARINA data collections. GLODAP and CARINA are data collections that have been subject to careful secondary quality control. The data assembled here is subject to primary quality control. It is the opinion of this reviewer that if the primary QC leads to a flag 4 (bad) then the data should simply be deleted as nobody outside the group of authors is likely to know better, ever. Apart from this the flags seem to be used sensibly.

It is indicated that in some cases mercuric chloride was used for sample preservation. Is it known when this involved the solid salt and when a solution? Would a dilution factor have been applied if a solution was used?

Specific comments

Page line

235 22 Clarify what a shallow end point means 236 4–10 How much could this offset be and are the data flagged? 239 5 Is this a mercuric chloride solution?

Technical corrections

Page line 233 3 DOE(1994) is described

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