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ESSDD
6, C291–C293, 2014

Interactive Comment

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.

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We thank both reviewers for their positive comments and helpful suggestions in improving this manuscript.

This reviewer's main recommendation was to elaborate on the interconsistency between cruises for the older alkalinity data. Reviewer 2 asks if we can estimate the magnitude of a potential alkalinity offset in their specific comments (specifically in regards to page 236 lines 4-10). We have attempted to address both recommendations

with the addition of the text below (page 13 lines 25-32 and page 14 lines 1-4), as well as a new figure (Figure 7 in the revised text, but shown as Fig. 1 below)

A similar evaluation of this dataset is difficult, because of variations in station distributions (Figure 2b) and a lack of deep samples on many cruises. Nevertheless, a plot of the limited alkalinity data from 2500 m (which roughly coincides with a deep temperature minimum and is slightly deeper than the minimum depth used for secondary quality control crossover analysis in the GLODAP, CARINA and PACIFICA data products; e.g. Tanhua et al. 2009) in the central Canada Basin (Figure 7) indicates that alkalinity measurements may have been high during the 1993 and 1995 cruises. More importantly, however, the alkalinity values at 2500 m show high variability, even after 2000, without any clear offset between individual cruises. Therefore, based on the information available at this time, we can neither rule out nor confidently confirm any analytical bias in the alkalinity measurements between cruises.

This paragraph was originally part of the companion manuscript to this paper (Miller et al., submitted to Polar Research), but we felt it was better placed in this manuscript and hopefully addresses the difficulties of trying to determine the existence or magnitude of such an offset in the alkalinity data.

Interactive comment on Earth Syst. Sci. Data Discuss., 6, 223, 2013.

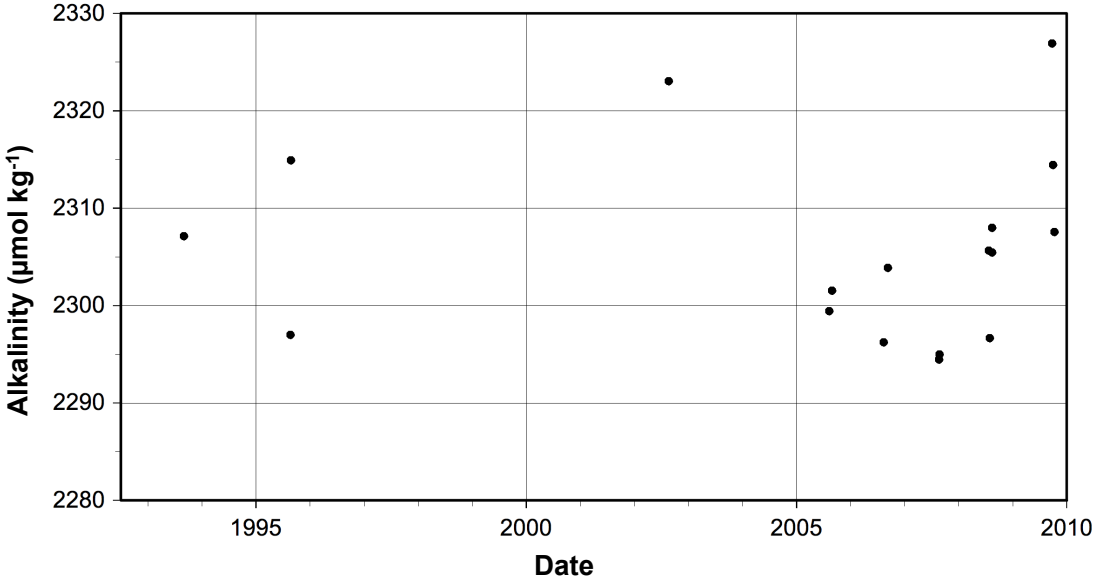

Fig. 1.

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