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***Interactive comment on* “Calcium carbonate saturation in the surface water of the Arctic Ocean: undersaturation in freshwater influenced shelves” by M. Chierici and A. Fransson**

Anonymous Referee #1

Received and published: 28 May 2009

This is an informative paper that presents a good survey of calcium carbonate saturation of shelf waters over a large region from the Labrador Sea through the Canadian Arctic Archipelago to the Chukchi and Beaufort seas. The paper is set in the context of climate change effects on ocean acidification in these Arctic regions. The strength of the paper is in the very high quality measurements made over Arctic regions with quite different chemical characteristics. The authors discuss reasons why these differences occur and briefly conjecture what changes may occur under climate change. I recommend that the paper be published with a few minor revisions.

P 4965 line 6, 10 and 15: change lead to led.

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P 4966 line9: change depress to depresses.

P4972 lines 1-2: A reference and perhaps clarification is needed for the statement that Atlantic water from the Labrador Sea enters the CAA. There is Atlantic water in eastern Lancaster Sound, but its main source may well be Atlantic water flowing from the Arctic Ocean via Nares Strait.

P 4975 lines11 and 27: The Fransson et al. reference in the text seems to be need updating.

Figure 1: A reference is needed for the surface circulation in the Beaufort Sea.

I hope that all figures, especially the maps, will be somewhat larger in the final printed version of the paper.

Interactive comment on Biogeosciences Discuss., 6, 4963, 2009.

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6, C550–C551, 2009

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