

## ***Interactive comment on “Export of calcium carbonate corrosive waters from the East Siberian Sea” by Leif G. Anderson et al.***

**Leif G. Anderson et al.**

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1. As a general action to the comments of lack of references we include such where the reviewer suggests so.
2. We shift the two first paragraphs as suggested.
3. Regarding eq 1-2 the notations “equilibrium” and “observed” are added as a superscript to make this point clear.
4. The expression “solubility state” is changed to “saturation state”.
5. We apology for our sloppy expression of “calcium carbonate saturation”. All through the manuscript it is changed to “water saturated with respect to calcium carbonate”.
6. –p 4. The dissociation constants K1 and K2 are given in the original manuscript, but  
C1

we complement with that of the solubility product ( $K_{so}$  according to Mucci, 1983) and salinity-calcium ion concentration ration (Riley and Tongudai, 1967).

7. –p 4, l 30: The intention was to introduce the result section by setting the mind of the reader and then substantiate the statements in the following text. If this is suitable or not we leave to the editor to decide. No problems to change if needed.

8. –p 5. We change from “low saturated water” to “water undersaturated with respect to ..”

9. –p 5, l 29. We tried to explain that in the next sentence. As it might not be clear we expand this text to strengthen the arguments.

10. Figure 3. We change “correlated” to “associated” as we don’t mean a statistic correlation. No such has been done in the manuscript and we don’t feel this add any substantial information.

11. –p5, l 5-10. The text is expanded to make this point clearer to the reader. We take the advice of the reviewer and include some concentrations, as well as parts of the text arguments.

12. –p 6, l 12-13. We do not see the problem here; however, we changed accordingly to clarify the arguments.

13. A reference to Redfield et al., 1963 is included.

14. –p7, l 9. This is what we try to explain in that paragraph, but obviously not well enough. It partly relies on the work of Jones et al (2003) and in the revised version we repeat some of those arguments. Figure 8 does not support export to the North Atlantic by itself, but the signature has been used by Jones et al (2003) to show that some of the Pacific water does. That’s why we use the word “likely”. Again text is added to clarify the arguments.

15. –p 7, l 15. The source is the Siberian shelf and this is spelled out explicitly in the

next version.

16. Fig 7. Our mistake. Should be PO<sub>4</sub> (as also clear from the scaling). This is changed. Thank you for noting.

17. Fig 7b. The only relevance of these arrows is the directions. Length and location is not relevant. This information is added.

18. Fig 9. We feel that it is needed to explain all the details of the figure in the legend so it can be understood by itself. However, we will scrutinize if this text can be optimized.

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