

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

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This is an interesting paper discussing corrosive waters from the East Siberian Sea. It is easy to follow the text but there are some parts in the text that needs clarification. The study should be published after minor revision (see below)

Comments

(text from introduction) High corrosive shelf water spreads far out into the deep central Arctic Ocean. Is that bottom waters or surface water or both?

(Discussion) how can calcium carbonate solubility be regulated by salinity? This must be explained. Salinity just reflects Ca^{2+} and CO_3^{2-} concentrations, or?

The conclusion section must be rewritten and text added to the discussion (see below).

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Which data in the study support the statement "This signature is maintained in the shelf by microbial degradation of organic matter that to a large degree is of terrestrial origin"? Photodegradation of dissolved organic matter has been shown to be a significant or even dominant mechanism of oxidation of this material in sunlit waters. In shallow arctic lakes and streams the photo-degradation of DOM can greatly exceed bacterial respiration (see discussion in Cory et al, 2015 Biogeosciences 12, 6669-6685). Hence, the authors must shortly discuss the role, influence, of photo-degradation (if any) for the formation of corrosive surface waters.

Furthermore, the statement "Mixing and uptake of CO₂ from the atmosphere prevent the calcium carbonate undersaturated water to spread out far from the continental margin" This statement is unclear. Which undersaturated water? Which type of mixing? Uptake of CO₂?

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