

***Interactive comment on “Brief communication:
ikaite ($\text{CaCO}_3 \cdot 6\text{H}_2\text{O}$) discovered in Arctic sea ice”
by G. S. Dieckmann et al.***

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We will conform with the reviewers request and add the XANES results and XRD patterns in the revised manuscript. The main intention of this communication is to provide evidence of the occurrence of ikaite in Arctic sea ice and to stimulate further research while at the same time pointing to methodological problems to enable improvements in sampling. We do not have any data on the sea water chemistry and physics of the area of investigation at the time of sampling and we do not see the significance of supplying additional data such as temperature and salinity of the cores in which we found the crystals since the data do not reflect the conditions under which precipitation occurred. They are momentary data taken at the time of sampling and do give any idea of the developmental history of the sea ice since freezing. The presence of ikaite in the top

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of the ice cores confirms observations we have made in Antarctica. See Dieckmann et al. 2008. Our current view is that maximum precipitation of CaCO_3 occurs at the onset of sea ice formation and slows down or stops as sea ice growth progresses, thus explaining why most crystals are found near the top of the sea ice. The phosphate concentrations we refer to are from the literature. We cannot provide own data. This also applies to salinity in the underlying water column.

Interactive comment on The Cryosphere Discuss., 4, 153, 2010.

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