

Interactive comment on “A mechanism for biologically-induced iodine emissions from sea-ice” by A. Saiz-Lopez and C. S. Boxe

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The authors would like to thank Rolf Sander for raising these interesting questions.

To the best of our knowledge the fraction of sea ice surface connected to the ocean via brine channels is not well known and only studies have been carried out via case-by-case analysis on small fractions of sea-ice. Therefore, we estimated (or made an assumption based on Fig. 2, Weissenberger and Dieckmann, Limnol. Oceanogr., 37, 179-183, 1992) that since the fraction of brine is between ~ 45-50%, this would correlate to the fraction of brine channels that are actually in sea ice regions.

We will further study the role of convection in the vertical transport through the brine channels. In addition to the references cited by Rolf Sander we would like to point to an interesting study where it is suggested that transport through brine channels occurs by

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not only diffusion, but recirculation of water from below the ice and convection (which apparently plays a minor role – less than 1%) – Niedrauer et al., (1979) An experimental study of brine drainage and convection in young sea ice, J. Geophys. Res., 84, 1176-1186.

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