

Interactive comment on “Controls on microalgal community structures in cryoconite holes upon high Arctic glaciers, Svalbard” by T. R. Vonnahme et al.

Anonymous Referee #2

Received and published: 21 December 2015

The presented study investigates in good detail the control of microalgal communities in cryoconite holes on glaciers in Svalbard. The study is performed with great care at numerous sampling sites (62 cryoconite holes) on three different glaciers and provides new insights into the algal/cyanobacterial communities and is therefore recommended to be published in Biogeoscience. Most interesting is the lack of any significant negative correlation of grazers with the eukaryotic algal communities, more predictable the algal/cyanobacterial communities in relation to nutrient supply.

A few minor inaccuracies should be corrected before final acceptance of the study:

p. 11752, l 12: when talking about ‘large colonies’ a cell number of < 10 cells appears

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rather small. (the same again in the discussion on p. 11771) p. 11757, l 2+10: avoid the term 'big' ciliates; rather 'large' p. 11757, l 12: give an explanation why only moving individuals were counted – as estimate for their viability? p. 11757, l 16: ...estimated by epifluorescence microscopy for cyanobacteria and light microscopy for... p. 11758, l 15: the results on 16S rRNA sequencing come suddenly, they were obtained earlier (in 2012) and likely from similar, but not the same sampling sites. Have these studies been published before? if so give a citation, if not explain that they were used only as a comparison for genus distribution and give a citation for the methods used (MiSeq Illumina sequencing); as it stands no, the reader does not have enough information to judge on significance of this comparison. p. 11761 l. 16: see above, if this is an integral part of this study, more information is needed – similar sampling sites etc. otherwise no direct comparison is possible. p. 11765, l 10: should it not read: ... bird colonies with high nitrogen levels? p. 11765, l 23: not sure if 'trichomes' of Oscillatoriales is correct, the author rather mean 'trichal' Oscillatoriales; (the same again in the discussion on p. 11771) p. 11772, l 4 Green microalgae ... occur mainly as single cells – this is likely too general e.g. filamentous Zygnemales (like Ancydonema) never occur as single cells. p. 11792 Fig. 3 c it is not clear which column is for Hørbyebreen (Hørbye.1) and Norden.1 (in the figure only the respective .2 are marked? what is the middle column?? p. 11795 Fig. 6 Rotifers were separated in bdelloid (rotifers)... and Ecentrum sp.: the latter not in the graph visible.

Interactive comment on Biogeosciences Discuss., 12, 11751, 2015.

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12, C8620–C8621, 2015

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