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Interactive comment on "Spatial distribution of cold-ice within a temperate glacier – implications for glacier dynamics, sediment transport and foreland geomorphology" *by* Benedict T. I. Reinardy et al.

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The article deals with a very interesting issue of the interaction of so calle "cold-ice" and "temperate-ice". It presents very interesting and original research results and adds substantial detals to the understanding of glacier termcs. In the title, however, it also contains a reference to the transport of sediments and geomorphology of the forefield. Although the georadar does not show this directly, as B. Etzelmuller rightly pointed out in his review, the article describes two types of glacier thermics: related to pressure melting point (PMP) and below this temperature ie. frozen (to the bed) conditions.

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Discussion paper

I think that these thermal conditions visible on the glacier have their analogy also on its foreground. This means that the CTS is a surface that is essentially not limited to the glacier, but has its "thermal continuation" on the glacial forefield. This was also noted in similar sense by B. Etzelmuller indicating in point 3 of his review the existence of a glacier - permafrost relationship in which the role of CTS is also in some way visible. In this context, it is worth to analyzing Fig.1. from work: Etzelmüller, B., Hagen, J.O., 2005. Glacier-permafrost interaction in Arctic and alpine mountain with the examples of southern Norway and Svalbard. In: Harris, C., Murton, J.B. (Eds.), Cryospheric Systems: Glaciers and Permafrost Geological Society of London Special Publication No. 242. Geological Society of London, London, pp. 11-27. In fact the Authors combine in this paper base of permafrost (PB) with cold ice layer, and in fact indicate continuation of CTS and PB surface.

I allowed myself to develop this relationship based on geophysical research on Storglaciären, (where the CTS surface was first seen). The results of the study were published in the work: Dobiński et al. 2017. Cold-temperate transition surface and permafrost base (CTS-PB) as an environmental axis in glacier-permafrost relationship, based on research carried out on the Storglaciären and its forefield, northern Sweden, Quaternary Research, 88, 551-569. which may be interesting for authors.

best greetings

Wojciech Dobiński

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