

Interactive comment on “Using ground-penetrating radar, topography and classification of vegetation to model the sediment and active layer thickness in a periglacial lake catchment, Western Greenland” by Johannes Petrone et al.

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Received and published: 29 August 2016

GENERAL COMMENTS: In general a good paper with an interesting research topic and relevant for the permafrost community. The paper addresses several issues and topics concerning this scientific field, which is good for defining the periglacial environment and processes occurring in that environment. However, a few corrections and improvements are required to clarify some of the figures and especially enhance the discussion part of the paper.

SPECIFIC COMMENTS: Fig. 4A-C and Fig. 4D-F are probably profiles 1 and 2 in Fig 3B. I presume the profile are the roughly E-W transecting profiles in the map Fig. 3B!? I would also recommend that the Fig. 4 figures should have a consistent order with GPR-profile, Probe and the model of different layers, now they are mixed between profile 1 and profile 2. Fig. 4 B and Fig. 4F why are there a difference between the profiles in the figures and what is the difference between the probe data and the modelled active layer depth from the GPR profiles? Can you please elaborate around this problem and write it out a bit more clearly.

Fig. 7 Upper part is the model of the active layer thickness in the catchment area while the lower is a schematic model, could you indicate in the upper figure where the schematic model in the lower figure is located? The text is referring to Fig. 7A and 7B but this is not indicated in the figures or the figure caption below, please adjust caption accordingly to the text.

In the Fig 8 it is missing A, B and C, please add that to the figure. Please also add A, B and C to the caption and please refer to these different sections in the text clearer. Especially section 3.2 and lines 15-20 of the discussion part would be more understandable if the reference to Fig. 8 updated accordingly to the suggestions above. The text in the discussion is unclear concerning the soil temperature measurements and especially where this measurement is performed. Can this be indicated? Where approximately is this Fig 8 for the model taken, can it be indicated on any of the maps in the earlier figures?

If these corrections and improvements to paper is done, I think that the paper will be a good contribution to the periglacial and permafrost scientific community.

Interactive comment on Earth Syst. Sci. Data Discuss., doi:10.5194/essd-2016-19, 2016.

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Discussion paper

