Review of revised manuscript: Future permafrost conditions along environmental gradients in Zackenberg, Greenland

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General Comments

This paper has been substantially revised and significantly improved. It is focused, and the model uncertainty is dealt with in a much more satisfactory manner. As such it should be accepted with some very minor revisions.

Specific Comments

P14, paragraph 2: As requested before, SHD have to be given for the land cover classes. No actual snow depths are presented so the reader wants to at least know what the assumed depths are. Are these land cover classes the same 4 classes used throughout the paper?

Figure 7 and P18-19: There is a general bias, with modeled temperatures being warmer than measured temperatures at any depth. Aside from the possible explanations given, can you conclusively rule out a systematic error in the model parameters? Perhaps the assumed SHD values are too great?

P20, L23-25. This statement remains incorrect. As modelled, the limited increase in AL depth beyond 0.6 m has nothing to do with high ice contents in near-surface permafrost. Table 1 indicates that all modeled soils have the same ice content at the top of permafrost (40%). As mentioned in the initial review, this is likely due to the saturated wetland active layer, that year over year has a much higher water content than the next wettest vegetation type *Cassiope*. Consequently, it requires much more energy to thaw the active layer, there is also evaporative cooling (hence the minimum n_t values), and so little energy is available at the end of the thawing season to increase the active layer depth.

Technical Corrections

P3, L7: Change "e.g." to ", for example,".

P5, L4: Change "many other sites, e.g. the wetlands, found in the Zackenberg valley." to "many other sites found in the Zackenberg valley, such as the wetlands."

P18: Indent paragraph at line 4.

P19: Indent paragraph at line 12.

P20: Indent paragraph at line 10.

P20, L23: Change "average ground" to " average 1-m ground".

P20, L25: Clarify a bit. Perhaps say " may be initiated at sites with topographically induced snowdrifts."

P25, Conclusion 2: Perhaps say "…grid cells with topographically induced snow drifts feature positive average 1-m temperatures…"

Figure 1. Many place names are cut off, making the figure look like it was drafted quickly and without the care given to the other figures. Most names can be removed as they are not referred to in the text, or they should be repositioned.

Figure 1. Which dots represent the two 10-m deep boreholes? Are those the two sites located to the NE and SW?

Figure 9. Clarify Figure for internal consistency so that the legend says wetland, instead of Grassland/Fen