

## ***Interactive comment on “Permafrost distribution and conditions at the headwalls of two receding glaciers (Schladminger and Hallstadt glaciers) in the Dachstein Massif, Northern Calcareous Alps, Austria” by Matthias Rode et al.***

### **Anonymous Referee #2**

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The authors investigate the permafrost occurrence on north facing slopes in a glacier environment in the European Alps. The authors use ERT, GST and BTS data for permafrost identification. They also present a field setup for temperature/resistivity calibration that should support their permafrost detection. The aim of this study is to investigate the permafrost distribution, but also a discussion on aggradation/degradation of permafrost is mentioned. The manuscript is quite complex displaying a large set of different methods, data and data analysis techniques. Especially in the results section the presentation gets complicated and lacks a clear structure. Various aspects are mixed

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and do not contribute to clarification of their findings. For example, it remains unclear what additional information the temperature/resistivity calibration should provide in this study since the measured resistivity values are interpreted solely based on resistivity values without reference to bedrock temperature distribution. Another example is the reconstruction of the former glacier surface. Since all except for one part of the ERT lines are located in close proximity to the current glacier extend, a reconstruction of the 1850 glacier area is not of interest and should have been resolved at higher temporal resolution. The discussion is not convincing, and here the authors again mix up various aspects. The entire discussion of permafrost aggradation/degradation is poor and could be much further elaborate. The authors conclude that permafrost is only found at the northern exposed slopes, but no other expositions have been investigated. The language and the composition of arguments could be significantly improved. Some of the figures lack clarity, for example the ERT results should definitively be presented in colour. Overall, I think that the findings are of limited interest to a greater audience and have only local value to stakeholders active on that mountain. The authors touch interesting fields of permafrost research but fail to present new data or ideas on them (e.g. aggradation/degradation). To conclude, I believe this manuscript requires substantial revision and it should rather be submitted to a journal with a more local /case-study type focus.

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