

The Cryosphere Discuss., author comment AC2  
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## Reply on RC2

Theresa Maierhofer et al.

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Author comment on "Spectral induced polarization imaging to investigate an ice-rich mountain permafrost site in Switzerland" by Theresa Maierhofer et al., The Cryosphere Discuss., <https://doi.org/10.5194/tc-2021-234-AC2>, 2022

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### Article ID.: tc-2021-234

Dear Editor and Reviewers,

Thank you very much for evaluating our manuscript "Spectral Induced Polarization imaging to investigate an ice-rich mountain permafrost site in Switzerland". We appreciate the comprehensive and detailed remarks and thank the reviewers for their comments that helped to improve the quality of the manuscript. We carefully addressed all comments of the reviewers including the adaptation of figures to enhance the legibility as well as editing some sections to improve the formulations and the clarity of our text.

Although all comments were included in the manuscript, we uploaded a point-by-point reply to the reviewers describing changes made in the manuscript. Besides the comments of the reviewers, we have also included the revisions to account for the recommendation of the editor.

Additionally to the comments from the reviewers, we agree with the comment of the editor regarding the applicability of the method to other permafrost sites and will address this point in lines 629-633 in the Discussion Section: "Within our study, we showed that we can discriminate between different substrates and ice contents and other studies demonstrate that the induced polarization method is also applicable for morphologically different mountain (bedrock, coarse blocks) (e.g. Maierhofer et al., 2021) and arctic (loose sediments) (e.g. Doetsch et al., 2015) permafrost sites. However, the frequency dependence of the polarization response of ice-rich and ice-poor sites of varying geologies needs to be analysed in more detail in future investigations."

We hope that our edits address the concerns of the editor and reviewers, and thank you again for your helpful comments and suggestions. We hope that our manuscript is suited for publication in The Cryosphere.

Best regards,

Theresa Maierhofer, Christian Hauck, Christin Hilbich, Andreas Kemna, Adrian Flores-Orozco

Please also note the supplement to this comment:

<https://tc.copernicus.org/preprints/tc-2021-234/tc-2021-234-AC2-supplement.pdf>