

Dear F. Bouchard et al.,

Thank you for your careful consideration of the reviewer's concerns. It is clear from the comments that the reviewers thought quite favourably of your manuscript, and provided many helpful comments that I think will improve the final paper. I would like you to please submit a revised manuscript for me to review.

Reviewer 1 made many helpful and detailed comments. Most appear to be easily dealt with, and I have just a few follow up questions that I hope you can clarify at this stage.

Line 99: Please ensure there is a commensurate change in the text to reflect your response to the comment.

Line 228: Again, please ensure that there is a commensurate change in the text to reflect your response to the comment.

Lines 356-358: If these are results. It may be that these data were not in the original study design, and yet they were not produced by accident. I would like you to please include the results in the results section and discuss here. Or, if the data are already published in Preskienen et al., then you may want to keep here as a part of the discussion of your results in the context of other work. There needs to be a clear line between your contribution and that of others in the extended research group. Somebody needs to take responsibility for the data and explain its origins.

Line: 415: Here and elsewhere, please see if you can replace such articles "in review" with materials that have been published. Everybody wants to be able to follow up on referenced statements, and this is not possible for materials in review (that may not get published). Please replace those "in preparation" with an alternative.

Lines 424-427: Please do include a few sentences that compare your site to other ice-wedge polygon sites.

Figure 6: If the reviewer was not convinced as to the novelty of your conceptual model, you will need to think carefully about it. What is new, and what is in agreement with existing models. I think that you have an opportunity to point out that models that suggest that thermokarst initiates from the low polygon is not in agreement with what we see in the field. There is a lot of literature on thermokarst initiation at the ice wedges (e.g., Mackay 2000, Figure 3), and your model agrees with it.

Reviewer 2 also provided several helpful comments. The only outstanding issue is with respect to the first general comment. R2 would like you to be more pointed in your discussion. Keeping in mind that you have addressed the detailed comments, please review your discussion carefully and see if you can tease out a few more subtleties that draw specifically from your work. It is these non-general details that will help increase the impact of this work, and distinguish it from other research.

Best regards,

Peter

Reference

Mackay JR. 2000. Thermally induced movements in ice-wedge polygons, western Arctic coast: A long-term study. *Géographie physique Quaternaire* **54**: 41-68.