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Biogeosciences Discussions

Interactive comment on "Wetland succession in a permafrost collapse: interactions between fire and thermokarst" *by* I. H. Myers-Smith et al.

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This is a careful and well written paper which presents some interesting data from a permafrost collapse feature. The issues the paper addresses are important in the context of projected climate change and the approach taken here provides some useful insight. The methods are comprehensive and appropriate and I have mainly minor suggestions regarding structure. With these modifications I would recommend publication.

The literature review is very thorough, but I think a bit overlong. The paper also needs a more specific statement of its aims. The description of the study area is thorough but it what I think is lacking is a clear justification of the selection of this particular study site and anything on the degree to which this site is representative of the wider landscape.

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Interactive Discussion
Discussion Paper

As the paper eventually draws general conclusions about landscape dynamics this is an omission which should be rectified.

The paper goes straight from results to conclusions…in fact the final section is really discussion and conclusions but I think it suffers a bit from being a half way house. I felt that in several places more explanation of the logic of the argument and reference back to the primary data was required to elaborate the points being made. On the other hand it would also be helpful to have some rather more succinct conclusions at the end to emphasise the main points.

Overall, an excellent paper that would benefit from some minor reorganisation. A few more detailed comments below are keyed to the manuscript.

Abstract. The non-linear response to climate referred to in the abstract is not really discussed in the paper proper

Page 4510 line 3 projected

4510 line 25 not sure of the relevance of testate amoebae to this study….as they are not used the statement of belief is a little odd.

Page 4512 line 5 2.5 cm over what time period?

Conclusions para 1 this is a bit unclear..is it saying that all sites on the transect have the same stratigraphy until the layer dated at 200 therefore this is the date of collapse? Need to state which stratigraphic horizons these are to allow reference to diagram

4519 line 14 dating by which technique?

4519 line 15 probably need to decide whether it is ‘around’ 200 years or ‘over’.

4520 line 6 Is the system genuinely ombrotrophic, I would have thought a collapse depression would be a water gathering site?

BGD

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4521 not sure that mechanism of collapse is a suitable title. This is more about triggers/drivers of collapse than the mechanics of the failure.

4521 line 16 I thought the collapse was at least 200 years old?

4521 line 21 What evidence is there that fire enhances the rate of collapse. If there was physical or morphological evidence of collapse rejuvenation post the 2001 fire it needs to be detailed. At the moment I can’t see anything presented here which unequivocally supports this claim.

4522 line 7 We have seen similarly high rates in re-vegetating erosional gullies which have several features in common with this system

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Interactive comment on Biogeosciences Discuss., 4, 4507, 2007.