

Interactive
Comment

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

Anonymous Referee #3

Received and published: 22 January 2008

General comments:

My apologies for the late review. I find the paper very interesting because of the combination of approaches used to study the historic developments in a boreal landscape. Vegetation patterns in this landscape are strongly determined by fire and thermokarst features and it is important to know more about their interactions and consequences for carbon storage. I have not seen this combination of analysis on peat cores with analysis of tree-ring width and survey of active layer depth following fire before. It resulted in a neat description of the history of this boreal landscape mainly during the past century in which some climatic changes took place. I agree with the authors that it is probable that fire triggered permafrost collapse. I am however a bit concerned about the dating. Standard errors are large and I know of a recent study that raised seri-

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ous doubts on the Pb210-dating. Uncertainties in dates translate into uncertain carbon accumulation rates. Wisely, the authors avoided strong statements on these carbon accumulation rates. Overall, I find this a novel contribution to an important topic and I would recommend publication of this paper with minor revisions.

Specific comments:

p.4509, l.7-9 Please explain how carbon accumulation is related to vegetation succession. As this was probably the context for studying vegetation succession in this landscape, I would like some more information.

p.4510, l.14 Replace used by combines several, delete namely ... sequence.

p.4510, l.21-29 The hypothesis forms the end of the introduction. I would remove lines 21-29.

p.4512, l.3 Insert height in-between average and growth

p.4512, l.5 In which time period was this growth?

p.4513, l.2-4 How deep were the cores?

p.4513, l.7 sub samples instead of samples I guess

p.4514 Please include a paragraph on macrofossil analysis

p. 4516, l.15 Is the age in table 2 the mean of these 3 approaches?

p.4517, l.15 Please include something like: , suggesting ... conditions,

p.4518, l.4 Would it be possible to include an estimation of uncertainty for the carbon accumulation rates?

p.4520, l.19 Could you be more specific on the terrestrial influence? I am not sure what you mean

p.4521, l.11-12 I do not understand this sentence

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p.4530 Is this table necessary?

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

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