

## ***Interactive comment on “Modelling historical and recent mass loss of McCall Glacier, Alaska, USA” by C. Delcourt et al.***

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An intriguing paper that prompts me to seek further information on several points. Addressing each will help provide a better understanding of what we can learn from the model.

390-2. The ratio of internal accumulation has increased markedly. Is this because, the retained snowpack at the end of the ablation season is reduced, whereas the internal accumulation process has not been impacted by the higher ELA? Internal accumulation process occurs at greater depth and typically earlier in the melt season, making this seems possible.

392-12 It is observed that in 1970 the glacier surface was close to the height of the LIA

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lateral moraines. Figure 5 illustrates that this is not the case near the terminus but is at the ELA. What reach of the glacier is this statement applied to? The amount of thinning with distance upglacier appears to match the theoretical thinning explored by Schwitter and Raymond (1993). How well does the model do at simulating this thickness change longitudinally? 395-14 It is noted that velocity agrees well with model results. Provide some data on what specific results you are referring to in this paragraph. In Figure 8 there is not particularly good agreement except in the lowest 2 km, near the terminus, between the model and the observations. Figure 2 What type of observations is the 2003-2004 balance gradient based on? Figure 7. Illustrates additional the model overestimates glacier thickness near the terminus. Why do suppose this is the case? Could this be one of the reasons that the response time appears to be greater than it should be?

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