

Interactive comment on “A simple equation for the surface-elevation feedback of ice sheets” by A. Levermann and R. Winkelmann

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Dear Dr Fettweis,

We would like to thank the reviewer for taking the time to work so intensely with our manuscript and we are very happy that the reviewer considers our work interesting. We agree with the reviewer that the comparison of the simple equation that we derive with the process-based models is interesting, but we do not really consider it the “most interesting result” of the paper, which is why we have not made it the title of the study.

As much as we appreciate the reviewer’s comments, we would also very much appreciate if we could keep the paper in the spirit in which we chose it to be. We fully recognize that there are different views on what is important and relevant science. The reviewer has one take on this and we have a slightly different one. A number of the specific

C1

comments of the reviewer point into the direction of changing the spirit of the paper. We would very much appreciate if the editor would allow us to keep the essence of the paper as we intended it to be: An equation that captures only one specific aspect of the melting of an ice sheet. It is purposefully simple. It purposefully does not include any dynamic effects and it is purposefully not a modelling study. It is a paper on a simple piece of theory that we did not find in the literature and would like to report here so that it can be used by others in the future.

There is no doubt that our study is not a comprehensive analysis of ice sheet mass loss and we make this very clear throughout the paper. We believe that there is a special merit in extracting specific processes from complex physical phenomena and this is one small contribution in this direction. We hope that it will be of interest to other researchers in the field and believe that it can be used without further complication.

Having said that we very much appreciate the reviewer’s suggestions on the manuscript and we will, of course, incorporate and address every aspect that the reviewer raises - in particular, where it helps to improve the manuscript’s clarity and legibility. If that means that it becomes a “brief communication”, that would be fine. We just thought that there is no need to reduce the number of figures and references in order to meet the length limitations of a brief communication, but if that is required, we can do this, of course.

We would again like to thank the reviewer for the detailed review of our manuscript and will give a detailed response to all of the reviewer’s comments together with a revised manuscript that also include the second reviewer’s comments.

Best wishes, Anders Levermann

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C2