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Dear authors:

Thank you for submitting a revised version of your manuscript entitled “ **Pre-calibration of a simple Greenland Ice Sheet model for use in integrated assessment studies** ” for publication in *The Cryosphere*.

After reviewing the comments by both reviewers, and the corrections to your manuscript along with comments and answers, I have decided to reject it.

I understand the need for models such as the one described in your manuscript for use in studies focusing on parameterizations, spin-ups, uncertainty quantification and error analysis among others. However, the reviewers have raised a number of issues that were not addressed during the review, and that would require substantial modifications and warrant a brand new review. It is in my opinion more suitable to re-submit a new manuscript after further modifications have been carried out.

From reviewer #1, the main concerns that were not adressed were:

- 1) the lack of scientific results that could be leveraged using the full computational power of the flow-line model.
- 2) the fact that a one-dimensional model cannot represent an entire ice sheet such as the Greenland Ice Sheet if it does not capture some of the main ice streams, such as Jakobshavn Glacier and 79 North. This is indeed an issue that could have been addressed during the revision by modifying the flow-line being used to include both glaciers, especially if the model-runs only take hours. Instead, the authors plan to experiment with different transects and report on the results in a sub-sequent publication.

From reviewr #2, some of the concerns that could have been addressed were:

- 1) the concern (similar to reviewer #1) that the model may be efficient but not representative of the GIS.
- 2) lack of scientific conclusions and clear scope (the model is fast, but why does it need to be that fast?)

Knowing full well how hard it is to setup a new ice sheet model, I truly encourage the authors to recompute their results on a different transect (one that includes as many ice-streams as possible, possibly two, one East-West and one North-South), and to leverage the computational power of their approach to reach scientific conclusions that could not otherwise be reached using higher-order models.

Sincerely yours,

Dr. Eric Larour,  
Editor *The Cryosphere*