

Response to the reviews for the manuscript “Grounding-line dynamics in a Stokes ice-flow model (Elmer/Ice v9.0): Improved numerical stability allows larger time steps”

August 2026

We thank the reviewers and the editor for taking the time to review the revised manuscript. The response to reviewer 2 is included below, with the reviewer’s comment in black and the authors’ response in blue.

Kind regards,

Clara Henry, Thomas Zwinger and Josefin Ahlkrona

Reviewer 2

The response to Q22 (Reviewer 2) references “reasonable simulation times”. This would seem to depend on how many processes the model is running on, so please clarify the computing resources and, if available, wall-time needed to run the examples in the manuscript. Other comments have been addressed satisfactorily, so recommendation is accept.

The MISMIP simulations presented in the manuscript were performed in serial because two-dimensional simulations with vertically extruded meshes are not currently supported in the Elmer/Ice parallel architecture. We have refrained from calculating the wall time for the entire MISMIP simulations because each simulation produced hundreds to thousands of log files, some of which needed to be removed for storage reasons.

In response to this comment, we have replaced the sentence “These 2D simulations were performed in serial” with “The MISMIP simulations were performed in serial on the Dardel high-performance computing system (PDC Center for High Performance Computing), using the CPU partition with AMD EPYC Zen2 processors.” We have furthermore altered a sentence in Section 5.1 to read “...the simulations were performed with 100 partitions using CPU partitions on the Dardel high-performance computing system with AMD EPYC Zen2 processors.” In the previous version of the manuscript, the average CPU time per partition was reported. We have adjusted Figures 7 and 10 so that both the total CPU and wall times are presented.