Rebuttal to the review by Evan Gowan.

We thank the reviewer for their insightful and constructive comments on our manuscript. We'd hereby like to address their concerns, and propose revisions to our manuscript to alleviate them. Reviewer's comments are displayed in boldface, replies in regular type.

There are a number of equations introduced in section 2, and I found that in a few cases the variables were not explicitly defined. I suggest double checking this. It may also be helpful to include a table with all the variables (perhaps even in the appendix).

We will extend Table 1 to include definitions of all model variables and parameters.

There are a number of tests applied to the ice sheet model. Some of these MIPs I was previously not aware of. Though they are defined in section 4, they are sometimes referenced earlier in the paper. I think it would be helpful somewhere early on to have a table with the different MIPs, what they mean and/or what they are testing, and perhaps the main result of the tests with IMAU-ICE version 2.

We will add a table to the end of the Introduction section listing, and briefly describing the purpose of, the different benchmark experiments.

It is very difficult to see the results between the different model runs in this figure. Perhaps a better way to display this would be to show it as a difference from Schoof's analytical solution rather than as a raw velocity value.

Based on the suggestion by the anonymous reviewer, we have changed this experiment. The ice stream is now wider, so that the same resolutions as for the other experiments (40, 32, 20, 16, 10 km) can be used. The modelled results are now clearly visible.

I tried to get the software running using the instructions on the Github repository. Unfortunately, I had a bit of trouble compiling the program. After finally getting it to compile, I was unable to run the test case. I posted an issue about this on Github (https://github.com/IMAU-paleo/IMAU-ICE/issues/22). I think it would be worthwhile for the authors to try to get the program running on other systems to ensure ease of use, as it is an explicit goal of this model.

Because of the dependency of the model on external libraries (NetCDF, Lapack, PETSc), which are not located in the same place on every system, we cannot guarantee that it will run out-of-the-box on any platform. We will have another look at the predefined config files on Github to make sure those all work once the model is successfully compiled.