Review of Xie et al. 2021, GMD

The comments I made have been mostly addressed and I found this version of the manuscript easier to follow. The figures are greatly improved and much easier to read.

At this point I only have a few minor suggestions and one clarification to request after which the study would be ready for publication. The lines and page numbers refer to the latest version of the manuscript.

P5, l127: replace "thickness and temperature" by "thickness, velocity, and temperature". Otherwise, it reads that you are solving 3 equations for 2 unknowns while you have section 3.2.4 that shows the SSA equation.

P8, Sec 3.2.3.1: Thanks for adding this section. What I understand from it is that ice in the floating or grounded ice mask will need to thin down to less than 10m to become part of the ocean mask which then would become sea ice. If I am understanding this wrong, please add some details to this section. Also, please add a couple of sentences to describe what is happening to this ice that is now part of the ocean mask but has a thickness greater than 0.5 m. Later in the text, you mention that sea ice is not allowed to grow more than 0.5 m. Does this mean you quickly melt this thicker ice to be less than 0.5m? Please clarify this aspect here.

P9, l239: what is the value of the constant viscosity?

P17, l472 and 482: The SSA is an approximation rather than a parameterization. (It approximates the Stokes equation.)

P17, l480: To be clear, BedMachine is a product for bed topography and ice thickness amongst other variables, but not velocity. Please remove its reference here.

P17, l482: "which is due to the parameterization… " I would leave this part of the sentence out or tone it down with a word likes "partly". You have not explored many options to pinpoint "THE" reason of your velocity mismatch. As I mentioned in my first round of comments resolution is one of them, but your constraint on ice viscosity could be another one and your choice of inversion process.

P18, l505: replace "0.67" by "-0.67", whatever is correct value between here and Fig. 10.

Fig 8: replace "Obsevation" by "Observation" in the title of the left column.