Thank you for your diligent work and encouragement. Please find our reply to your comments below.

General Comments:
P1 #l2: The IRH geometry is also imprinted by basal melting.

We rephrased this sentence.

P2 #l38: If I remember well Martin et al., 2009 is exclusively related to Antarctica. I suggest adding "…of the Greenlandic and Antarctic ice sheets"

It is true that the work of Martin et al. (2009) is primarily motivated by field sites in Antarctica. We now realize that this reference is not ideal, because it does not simulate the "three-dimensional stratigraphy". It has been removed from the revised text.

P3 Eq (1): Define \tau_b also in text.

Respectfully, \tau_b is defined as the basal friction by the text immediately preceding equation 1, in exactly the same way as \beta is defined by the text leading up to equation 2, E of equation 3, etc.

P3 L79/L95 Consider rephrasing: I don't agree that ice streams and ice shelves do not have a preferred crystal orientation fabric orientation. From what I have heard, e.g., from studies on the onset of NEGIS the contrary seems to be the case. Also measurements, e.g., on Whillans Ice Stream (Jordan et al., https://doi.org/10.1017/aog.2020.6) show ice anisotropy. I am not asking you to change anything on the modelling side, but the simplifications applied (ice anisotropy is "only" a function of vertical shearing) should be treated with more caution and can be explained in a larger context.

Thank you for pointing this out to us. We weakened the statements on lines 79 and 95.

P5 L113: "figure 1" -> "Figure 1"

Done

P5 L150: Is it really noise or climate-variability on timescales < 10kyr?

This refers to climate variability. The text has been revised accordingly.

Consider adding coordinates to Figs 2 and 3.

We did consider adding coordinates to all of our figures showing maps, but decided against it. All maps show stereographic projections, so that latitude lines are curves and meridians converge. This makes the figures very busy. At the same time, these coordinates do not help to locate specific regions more than guidance by the salient features of the Greenland coastline.

Section 2.4 Consider adding a sentence or two for what would be required if other users want to apply a different host model. How does the coupling look like in practice?

Moreover: Can this approach also accommodate inclusion of isochronal surface with unknown age?

A sentence has been added to make this more clear.

Section 3.3: The comparison with the Eulerian age trace is great, however, when reading through the paper I realized that no details were provided on the implementation of the Eulerian tracer. Specifics can be important here and I suggest to provide some numerical context, possibly by referencing the specific discretization scheme applied (cf. Greve et al., 2002, https://doi.org/10.3189/172756402781817112).

We added the short subsection 2.1.3 to provide some detail on the Eulerian scheme.

Consider acknowledging the input of the reviewers in the acknowledgements.

Of course!

I appreciate your supplements with the python function, however, when I tried using it I got the following error:
| => python read_data.py
Traceback (most recent call last):
File "read_data.py", line 9, in
ens = pickle.load(open('lhs_ensemble.pickle','rb'))
ModuleNotFoundError: No module named 'yelmo_utils'

We now supply the yelmo_utils module and a minimally updated version of the read_data.py script. The only difference in the latter is the publication date of the study.