We thank Juan for their comments and constructive feedback. In the following, reviewer comments start with a **R:** and are set in grey italics, while our responses start with a **A:** and are in red.

Juan A. Añel

Code Usability Clarification in Manuscript:

R: *I would like to request you to clarify in your manuscript what it is necessary to run your code. I mean, you have provided the code for your model in the M language. This can be run using proprietary software or free software. The ideal case would be that it can be run using free software, such as GNU Octave, to assure the replicability of your work, which the use of proprietary software precludes. Also, beyond identifying the name of the software/interpreter compatible with your code, please, provide the exact version number used to run it, and if possible all the versions of the software compatible with your code.*

A: We thank Juan for their valuable comments and feedback. As this is a comment all three reviewers have made, we realise, and agree that it is important to appropriately clarify the usability of our emulator code in both our manuscript and an updated README.

We agree that ensuring the code can run on free software is an important step toward improving accessibility and reproducibility. However, for this study, our primary goal was to present a series of parameterisations to enhance the understanding of sea ice loss rather than to provide a fully runnable model. (We realise from other reviewers' comments that we have not made this clear in the current manuscript, that our intention for this paper to represent a parameterisation framework rather than an easily runnable model. We will make this clear in the revised manuscript). At this stage, the emulator was developed using MATLAB (R2024b), and we have not yet tested its compatibility with free alternatives such as GNU Octave or Python modules. We acknowledge the importance of making future versions of the emulator freely accessible and plan to work toward this in subsequent releases. However, we believe this process would be too time consuming for this current manuscript. In the meantime, we will clarify the software requirements within the manuscript and provide the exact version number used to ensure transparency.
