

Earth Syst. Dynam. Discuss., editor comment EC2
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Comment on esd-2021-100

Michel Crucifix (Editor)

Editor comment on "Dynamic regimes of the Greenland Ice Sheet emerging from interacting melt–elevation and glacial isostatic adjustment feedbacks" by Maria Zeitz et al., Earth Syst. Dynam. Discuss., <https://doi.org/10.5194/esd-2021-100-EC2>, 2022

Dear authors,

After a (somewhat) long wait, the two reviews are in. What you show in your paper can, in my view, be called 'oscillations' (even if not perfectly periodic), and oscillations in glacial/isostatic systems are rare, though not quite unprecedented (Oerlemans, J. Glacial cycles and ice-sheet modelling. *Climate Change*, **4**, 353–374 (1982). <https://doi.org/10.1007/BF02423468>. The context was quite different, as well at the overall setup, but this old example suggests, as pointed out by reviewer 2, that assumptions involved in the lithosphere/asthenosphere model are crucial. I would therefore invite you to consider the possibility of sensitivity experiments that would address the question, though I would not be willing to substantially delay the publication of your study.