

Geosci. Model Dev. Discuss., community comment CC2
<https://doi.org/10.5194/gmd-2022-188-CC2>, 2022
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Reply on AC4

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Community comment on "Barotropic tides in MPAS-Ocean (E3SM V2): impact of ice shelf cavities" by Nairita Pal et al., Geosci. Model Dev. Discuss.,
<https://doi.org/10.5194/gmd-2022-188-CC2>, 2022

Dear Authors,

Thank you very much for your response! I now understand that the pressure term (p^s) or ice loading essentially acts to achieve the correct vertical liquid height by depressing the sea surface height. In De Kleermaeker et al., (2017) and Wang et al., (2021), I think this was done by simply modifying bathymetry as "Bathymetry - Bathymetry_isf", where Bathymetry_isf is the thickness of ice draft, equivalent to "D" in this manuscript. Apparently, the approach used by the authors is more realistic. And yes, the ice draft is more than 1000 m thick in many places of the Weddell Sea, and it is very important to take it into account.

Best regards,

Pengcheng Wang