

# ***Interactive comment on* “Tidal influences on a future evolution of the Filchner-Ronne Ice Shelf cavity in the Weddell Sea, Antarctica” by Rachael D. Mueller**

**Rachael D. Mueller**

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Dear Dr. Timmermann:

We are grateful for your comments and interest in ongoing discussions regarding the advancement of model predictions inclusive of the influence of tides.

As you highlighted in your comment, the results of our study together with your Timmermann & Goeller (2017) results demonstrate a need to continue advancing our understanding of how warmer water will affect change within the FRIS cavity.

With regard to updating tides as a model progresses: The easiest way is to always use

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explicit tidal forcing at the open ocean boundaries, and  $u^*$ -dependent ocean/ice-shelf thermodynamics. Then, at least until the cavity tides start to also change the global tides (which happens), you always have real tidal forcing and the cavity tidal currents will change as needed.

This is a great topic for ongoing discussion and research. We are keen to work with you and others toward resolving these uncertainties in future work!

Thank you for your comment.

Sincerely, Rachael Mueller (on behalf of all authors)

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Interactive comment on The Cryosphere Discuss., <https://doi.org/10.5194/tc-2017-110>, 2017.

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