Comments from the reviewer are given in black.

Author responses are given in red, and **proposed amendments or additions to the revised manuscript in bold red.**

RC1: 'Comment on tc-2022-265', Pietro Milillo

This article discusses the development and application of a technique using ICESat-2 repeat-track laser altimetry to locate the inland limit of tidal ice shelf flexure and resolve the magnitude and temporal variability of tidal grounding line (GL) migration in Antarctica. The authors apply this technique to an ice plain north of Bungenstockrücken, in a region of the southern Ronne Ice Shelf subject to large ocean tides. They observe a 1,300 km2 area of ephemeral grounding over which the GL migrates by up to 15 km between low and high tide and identify four distinct modes of migration: “linear”, “asymmetric”, “threshold” and “hysteresis”. The short-term movement of the GL dominates any long-term migration signal in this location, and the distribution of GL positions and modes contains information about spatial variability in the ice-bed interface. The authors identify four distinct modes of GL migration: linear, asymmetric, threshold and hysteresis. I was surprised when reading about linear and threshold behaviors they did not mention recent well-known studies confirming these results (i.e. Milillo et al 2022 for linear behavior and Milillo et al 2019 for threshold behavior over the Thwaites Cavity). The authors recommend that these observations can be used to validate models of tidal ice shelf flexure, GL migration, and subglacial hydrology at the grounding zone (GZ). They find a 14 km grounding zone that could be explained with the Stubblefield et al 2021 Model. However, I haven’t found any reference to this paper in the manuscript. The study concludes with recommendations for future work, including the need for timestamped measurements of GL position accompanied by tide height and phase, continent-wide analysis of tidal GL migration, and improved representation of GL migration behavior in ice sheet models.

The paper is well written, well organized and provides significant results. I encourage the editor to accept this manuscript after few minor revisions.

Many thanks for the review and positive comments on this work.

I believe the authors could further improve the manuscript by referring the aforementioned literature studies as a further independent confirmation of the validity of their findings.

Milillo, P., Rignot, E., Rizzoli, P., Scheuchl, B., Mouginot, J., Bueso-Bello, J. L., ... & Dini, L. (2022). Rapid glacier retreat rates observed in West Antarctica. Nature Geoscience, 15(1), 48-53.

Milillo, P., Rignot, E., Rizzoli, P., Scheuchl, B., Mouginot, J., Bueso-Bello, J., & Prats-Iraola, P. (2019). Heterogeneous retreat and ice melt of Thwaites Glacier, West Antarctica. Science advances, 5(1), eaau3433.

Stubblefield, A. G., Spiegelman, M., & Creyts, T. T. (2021). Variational formulation of marine ice-sheet and subglacial-lake grounding-line dynamics. Journal of Fluid Mechanics, 919, A23.

Thank you for these suggestions, **we will refer to these papers in the revised manuscript.**

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