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Interactive comment on "Analysis of ice shelf flexure and its InSAR representation in the grounding zone of the Southern McMurdo Ice Shelf" *by* Wolfgang Rack et al.

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Having worked on the subject myself extensively in the past I judge this to be a landmark contribution to our understanding of the tidal flexure of ice shelves and the signature of this flexure in SAR interferograms. The authors demonstrate (convincingly in my opinion) that the surface displacement resulting from horizontal strain associated with the bending a thick elastic plate is significant for ice shelves and is the most likely first order explanation for both the GPS results as well as for the deviations from a simple elastic beam model of the InSAR derived flexure curves inland of the grounding line. The argument for the "horizontal strain" over the "fulcrum" explanation is inescapable in light of the logic developed in the contribution. The authors conclude correctly that we

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Discussion paper

can expect that their findings and the derived correction method will boost significantly the accuracy with which the grounding lines of both ice shelves and fast moving ice streams can be delineated and monitored in the future.

My only suggestion to the authors on the manuscript (in light of this potentially becoming a key reference) would be to give some extra scrutiny to the clarity of the language and brevity of argument. The text is clear and free of errors but especially in the abstract the wording could benefit from additional polish to make unequivocally clear what I consider is an impeccable result and conclusion.

Well done!

Please also note the supplement to this comment:
http://www.the-cryosphere-discuss.net/tc-2017-13/tc-2017-13-RC1-supplement.pdf

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