

I would like to thank the authors for undertaking significant revisions of the manuscript. The paper has been re-written in large parts following my comments and is now supported by five edited figures and three new ones. The corrections have strengthened its message and improved its clarity, especially since a reorganization of the text introduces now, in the order of importance, the DEM methods/results/figures before the velocity ones.

I use the structure of my earlier major concerns and an assessment of the corrections to recommend this paper for publication. Its conclusions highlight the dominant role of oceanic melting on the glacier frontal ablation as the ice is in greater contact with ocean and on the type, size and frequency of calving events. A major result of this high resolution campaign (in space and time) is that calving is less important than earlier thought for the frontal ablation budget and it is in lines with recent literature.

1. DEM derivation of the glacier front from TRI

The reliability of the measurements and the improvements due to DEM stacking are now extended in both the methods and results. The authors have re-processed their entire datasets after applying a correction factor to improve systematic error in the GPRI positioning and a shape conditions to account for pixel anisotropy (in radar space) while filtering small calving events. These improvements lead to new estimates of calving events and volumes (mostly filtering out small, Table 1) and thus new results for the distribution fits.

The new error assessment in space and time reinforces my confidence in their results as the signal to noise ratio is high, constant over their field period and a bias towards the shallow sector is clearly stated. Moreover, the threshold to detect calving events is higher than the noise (5 m) and coherent across the old and new manuscript. This is now clearly supported and illustrated for the stacked absolute elevations in the novel Figure 3 and the noise reduction of the difference through stacking in the added Figure 4. Figure 4 is particularly stunning to show the spatial distribution of noise and a clear example of the workflow used here.

2. Issues in determining best fit models for calving distribution

The new manuscript explains now in clearer details the interpretation of the maximum likelihood assessment (the ratio R values) in the results and the difficulty to prove the dominance of a particular fit. The authors extended the discussion as well. They state that a longer observation period is necessary to demonstrate the transition from a power law (self-organised critical system) to a log-normal distribution (complex system). Since the reprocessing of the calving event dataset, the retrieved power law exponent is also closer to published estimates. These corrections provide a more balanced and interesting scientific discussion answering my earlier concern.

3. Ice flux budget: bed topography and missing component

The added mention of the BedMachine data to estimate the bed topography, the inclusion of the ice flux comparison in Figure 7 and simplification of the text in the discussion lifted my doubts regarding your simplified flux estimates. The change from absolute ice flux into percentage makes your work easier to read, more relevant to other scientists and comparable to other glaciers. In section 5.1, the new paragraphs on the missing volume from small calving events in the total ice flux brings a more general view on the processes occurring at the front and the limits of our remote sensing instruments as I recommended earlier.

4. Better integration of calving wave dataset

A peak detection is now applied to the wave dataset providing a first order estimate of calving events although, as the authors added, some other wave sources may contaminate their estimate such as iceberg rolling. The integration of this dataset is also better through its use in Figure 12 that tries to link environmental forcing to calving variations.

Minor comments:

Abstract

l. 8, Precise what is the “deficiency” relative to

p.15

l. 6: replace “ration” by “ratio”

l.9: “better fit of the log-normal” compared to what exponential or power law.

Figure 8:

Can you place back on the figure the maximum likelihood scores as in your earlier manuscript? Those scores were very clear and useful for the reader to interpret your results.