

Interactive comment on “Brief communication “The 2013 Erebus Glacier tongue calving event”” by C. L. Stevens et al.

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We thank the Reviewer for their comments and are pleased they identified the “general clarity of the manuscript”. The reviewer’s main conclusion is that the present manuscript does not conform to that of a normal manuscript and is lacking key scientific investigation ingredients. However, we believe this misses the point that this is a particular category of publication “The Cryosphere Brief Communication” and as such has limits on what and how information is presented. The instructions for the journal states: “Brief Communications are timely, peer-reviewed and short (2–4 journal pages). These may be used to (a) report new developments, significant advances and novel aspects of experimental and theoretical methods and techniques which are relevant for scientific investigations within the journal scope; (b) report/discuss on significant mat-

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ters of policy and perspective related to the science of the journal, including ‘personal’ commentary; (c) disseminate information and data on topical events of significant scientific and/or social interest within the scope of the journal.”

We believe the present TCD article fulfils wholly the criteria identified in (c) and partly addresses aspects identified in (a). The calving of what is probably Antarctica’s most visited substantial glacier is a “new development”, all the more so because it is the second time in the satellite era (thus giving start to finish timing). A consequence of this is it is an important milestone for the southern McMurdo Sound region – again the most studied part of Antarctica’s continental shelf region. Certainly Reviewer #1, with a long track record of working in this area and on this topic, had no problem with the scope and scale of the manuscript.

The reviewer identifies three main criticisms beyond structural format.

(1) calving events are known to happen and do not constitute in and out of themselves publication material.

Really? We dispute this. Floating glacier calving events occur on decadal-century timescales and significantly influence the ocean and sea ice around them. In the present case we have added a new data point to the calving-vs-extension diagram for arguably the most studied floating glacier in Antarctica. Because of the nature of the finding – that the calving occurred well earlier than predicted based on past experience – we had to be careful and not overstep the realms of veracity and suggest a climate change driver. If we had done so, even though irresponsibly, there would have been substantial attention in the literature and media. We believe this work will be cited by regional ocean and cryospheric studies looking at decadal timescales. Again we must emphasize, not just any random region of Antarctica, but that with the greatest research focus (certainly for marine work) over the past 50 years.

(2) no observations other than satellite photos are used, and no advanced methodology is brought forward, keeping all the authors conclusions (correct or not) at the level of

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suppositions.

This is incorrect as the tip location-time figure access historical data on tip position enabling a far broader scope beyond the satellite era. Frezzotti (1997) has demonstrated the importance of this approach. We agree that no “advanced methodology is brought forward” – this Brief Discussion is all about the calving event and timing. Because the calving was unexpected and will influence a good deal of work in the region it was viewed useful to provide as best documentation on the calving as quickly as possible. We think it is common to have sparse data in such cases where timing of events is uncertain with event-windows approaching a decade.

(3) no significant gain is made in terms of knowledge, methodology or theory in the present study.

This is confusing because we (i) identify that calving happened well earlier than predicted, (ii) hypothesize a new aspect relating to the calving driver and (iii) we develop an estimate of ocean currents in the vicinity. On this last point the Reviewer appears unsatisfied as to the merit of the estimate. However, this is a fact of life for high latitude work and all the more so for rare events. Many small incremental advances have to be made and slowly pieced together. It just so happens in this instance we’ve determined an estimate for an important quantity in the context of an event that happens only once or twice in a scientific career. All the other feedback we’ve had at meetings and seminars is that this is a useful piece of the puzzle.

Interactive comment on The Cryosphere Discuss., 7, 1749, 2013.