

Interactive comment on “Speedup and fracturing of George VI Ice Shelf, Antarctic Peninsula” by T. O. Holt et al.

Anonymous Referee #2

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This is a well-written and thorough examination of George VI Ice Shelf. The Conclusion section is very well presented and the figures are generally quite clear. I have a few minor comments:

- 1) I really like Table 2. I also found that the language throughout the paper, based on this table, was consistent and therefore very easy to follow.
- 2) I really like Figure 2, but the detail of the entire northern half of the ice shelf is lost at the currently published scale. Perhaps a second inset, similar to the one associated with the South ice front is needed.
- 3) Pg 384, line 9 and Fig 8: The authors use a 200 m mask when examining ICESat data on the ice shelf. The zone of flexure is usually twice that, so the authors may

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be including non-hydrostatic ice in their surface-elevation-change analysis. This is especially apparent around the Eklund Islands and the western side of DeAtley Island, where it looks like much less than 200 m was masked. At a minimum, a justification of the 200 m length scale is needed.

- 4) Pg 387, lines 10-11 and Fig 6: Is there a typo somewhere? The text refers to ‘2009’ while figure times out at 2007.
- 5) Pg 387, line 21 and Fig 7: Similar comment as above. The text refers to 2009 and the figure shows 2010.
- 6) Pg 388, line 1 and Fig 7: Same comment as above. The text refers to 2009 and the figure shows 2010.
- 7) Section 4.4: Generally, deriving surface-elevation change on ice shelves is difficult (Fricker & Padman, 2012). I am most concerned about the advection of surface features (surface highs and lows that migrate with ice-shelf flow between ICESat campaigns, e.g., crevasses). Can you make any comments about this with respect to your analysis of the Central section of the ice shelf (in Figure 8)?
- 8) Section 4.5: Perhaps a before and after satellite image, that really demonstrates the grounding zone retreat, might be really nice.
- 9) Pg 391, lines 9-13: I am slightly confused by where exactly the authors are defining as the lee side of the Eklund Islands. Based on Fig 5, my expectation is that the ice-flow lee-side of the islands would be generally to the west. Thus, I expect lower ice-surface elevations on the west side of the islands. However, in Line 12 the authors state that the ice on the (north and) west side is thicker. I think that clarification is needed.

Interactive comment on The Cryosphere Discuss., 7, 373, 2013.

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