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Interactive comment on "Evolution of surface velocities and ice discharge of Larsen B outlet glaciers from 1995 to 2013" *by* J. Wuite et al.

T.ÂăA. Scambos (Referee)

teds@nsidc.org

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Review of Wiute et al, The Cryosphere Disc. The paper describes a series of ice velocity mappings of the Larsen B tributary glaciers, and flux gate estimates of their outflow for 1995 and a series of measurements since then, mainly post-2002. The authors conclude that all the glaciers are moving much faster than their 1995 rates, and that wide-embayment glaciers (e.g., Hektoria-Green-Evans) have had a series of accelerations and partial decelerations.

This is a very good observational study – well presented, well referenced, and well written. It deserves to be published. There are really no major weaknesses here. However, interpretation of the results is somewhat cursory. I assume that with this manuscript out, future papers will be able to use the data presented here to understand

the system and explain it, or model it, better.

The statement on 6278 L13-L18 is significant, but not supported, not that I can see –If there is truly evidence of summer seasonal acceleration, it should be highlighted with a clearer figure, and if a case can be made for sea ice backstress, it should be shown, or the statement should be retracted. This potential for seasonal variability has been talked about quite a bit. It would be plausible because of the similarity in climate to areas of the Greenland coast. There has been speculation about either summer melt percolation or fast ice back-stress, but no clear evidence that I'm aware of. If you have it, that would be a nice addition to the paper.

The data for Flask, Leppard, Starbuck, and the Scar Inlet shelf area is interesting, and clearly shows a system in slow-motion transition, adjusting to the loss of the main Larsen B backstress. The development of sharper shear margins, and the tension cracks on the eastern side of Scar Inlet, suggest that no further change in climate or ocean conditions may be needed for this area to rapidly calve away the current shelf and initiate the same kind of rapid acceleration and thinning seend for, e.g., Crane and Jorum post-2002. This should be stated more broadly in the conclusions (the current statement is one sentence).

Error bars should be shown for the different missions, especially for Figures 6 and 7, where they would be more obvious (and some note on Figure 3 that they are comparable or smaller than the line thickness). Rather than clutter up these nice clear graphics, I think a set of example errors for the different velocity mappings, next to the color / mapping legends, would be adequate.

Similarly, Table 2 shows clearly that errors are large enough that reporting mass flux to 0.001 Gt/a is unnecessary, and in fact nearest 0.1 to 0.05 Gt/a is all that is justified.

I would like to see a figure similar to Fig3 and Fig6 showing Mapple, Pequod, and Melville Glaciers, and perhaps Punchbowl and Starbuck. I'm quite surprised at the rather large velocity increase reported for MMP. Elevation decrease was relatively minor

TCD
8, C3072–C3074, 2015

for these glaciers in the 2000's.

Have a look at compilations of the marine bathymetry published in Lavoie et al (The Cryosphere Discussions, discussion closed) – this may help extend the kinds of observations / speculations made regarding Crane Glacier to others in this study.

6272 L17 – change to . . . their discharge was 38% and 45% respectively, higher than in 1995.

6279 L8 – change 'since' to 'for' — for an American or British ear, at least.

6287 L9-10 'intermitted is awkward to a U.S. ear (eye).

Interactive comment on The Cryosphere Discuss., 8, 6271, 2014.