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Earth Surface Dynamics Discussions

Interactive comment on "Inter-annual surface evolution of an Antarctic blue-ice moraine using multi-temporal DEMs" *by* M. J. Westoby et al.

Anonymous Referee #2

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General comments

The paper presents results from two techniques measuring the elevation of a blue ice moraine in very high resolution. The results are interesting, and demonstrate the use of the two techniques in a challenging environment. The results are discussed in a very descriptive way, however, with little analysis and discussion of the results. The discussion of the results is dismissed slightly off-handedly to another paper. As Review 1 suggests, this is probably a stylistic matter to be flagged up for the Editor.

The paper is well written and clear, however, I have one structural issue with it. The TLS and SFM results are used together straightaway in the presentation of the results in Fig. 3, with no consideration of the potential for error/bias between the two techniques. This was my first question when I saw Fig.3 – I would like to have this discussed first and a

difference figure (TLS vs SFM) presented for the whole dataset. I suggest moving the discussion of the difference on page 1328 to before the presentation of the intra/inter-season differences.

Specific comments

I found the description of the plots on p1326, line 24 quite difficult to follow. The authors refer to striking similarities, but I found it didn't strike me immediately!

Figure 1: I found it hard to get my head round this figure, even knowing a little bit about the area, I couldn't orient myself or visualise where the moraine was. Part of this comes from the fact that plots B&C are plotted upside down with respect to plot A. I would suggest putting a broader map of the Patriot Hills with respect to the rest of the Ellsworths and state clearly in the text that the main plots are oriented differently. Can you not plot B&C the other way up so North is upwards, is there a reason you plot it this way up? This would help with the discussion of Easts and Wests in the main text. If the plots are in a Polar Sterographic projection then is it appropriate to put a North arrow on the plot anyway? If B&C were in the same orientation as A, and A had lines of latitude and longitude, then it is easier to work out which direction is which.

Figure 2. This figure is not referred to in the text as far as I can see?

Figure 5. Can these lines be plotted in colour? I find it very difficult to tell which is which.

Interactive comment on Earth Surf. Dynam. Discuss., 3, 1317, 2015.