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Interactive comment on “Changes in the firn structure of the Greenland Ice Sheet caused by recent warming” by S. de la Pe na et al.

Anonymous Referee #3

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De la Pena and co-authors describe the occurrence, characteristics, and temporal evolution of ice layers found within snow pits and ice cores along the western slope of the Greenland Ice Sheet. Records span the period 1976–2014 and sample an elevation range from 1935 to 2490 m. The paper presents valuable results that highlight the complexity of changes in firn structure and their implications for lateral flow of meltwater and for volume change to mass change conversions. Overall I found the paper relatively straightforward but would have like to have seen a direct discussion of changes in firn pore space which are more relevant to volume change to mass change conversions than ice layers themselves.

I have read the other comments posted for this paper and have little to add.

Pg 543 L 4: “zones” instead of “regimes”? L 4: “ice content” instead of “solid ice”

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L 5: “superimposed ice zone” instead of “equilibrium line”, not the same Pg 445 L 2 “elevation” instead of “height” Pg547 L 6 to 13: I’m not convinced that the referenced comparison justifies your conclusion. Pg 548 L 3: could not find “Burgess et al.” in refs Pg 550 L4: this statement needs to be qualified. How can you be certain that part of the elevation lowering is not attributed to changes in dynamics or precip?

Table1: degrees, minutes, seconds are not displaying correctly

Figure 1: Show flight line on large map, plotting contours over a MODIS image would also be helpful

Figure 7: Can you also show the outline of the ice sheet for context?

Interactive comment on The Cryosphere Discuss., 9, 541, 2015.

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