

Interactive comment on “Assessment of NASA airborne laser altimetry data using groundbased GPS data near Summit Station, Greenland” by Kelly M. Brunt et al.

Anonymous Referee #1

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I think the paper makes a significant contribution to our knowledge of assessment of altimetry data using groundbased GPS data. I believe the paper should be published after minor revision.

Minor comments: Page 2, line 14, concerning satellite-derived time series. Add references to other than Zwally, 2005. Page 3, line 11 and 18 (and throughout the paper). 11,000 m and 6,000 m, change to 11 km and 6 km. I Assume the track is not exactly 11,000 m ? Page 3 line 18: After the text "...long and dense in situ observation of ice-sheet elevation change". Perhaps add reference to other papers combining GPS and ICESat, ATM e.g. Larsen, S. H., et al, J. Geophys. Res. Earth Surf., 121, 241–256, doi:10.1002/2015JF003507.

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Page 3, line 24. Is Trimble R7 receiver and Zephyr antenna used for all years ? Page 3, line 26. If possible add a photo of the antenna mounted on a static metal post on the sled. Page 6, line 18-31. I find this section confusing. You have listed names of several software packages used to process GPS data, however, no useful information about how the GPS data is processed is provided. How do you correct for troposphere delay, ionosphere? Which model is used? what cut-off elevation angle do you use? how do you deal with multipath etc. ...? It is also important that same GPS clock/orbit products are used by the different software packages, otherwise you may add an extra bias to your GPS solutions.

Discussion: Potential future work. In addition to surface elevations, you could compare elevation change rates. Here, you could take advantage of the continuously operating GPS base station at Summit Station. The reflected GPS signals from the summit station, can be used to measure GPS reflected height of the surface (see Larson et al, 2015, Journal of Glaciology, Vol. 61, No. 225, 2015 doi: 10.3189/2015JoG14J130).

Interactive comment on The Cryosphere Discuss., doi:10.5194/tc-2016-214, 2016.

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