

Interactive comment on “Seasonal velocities of eight major marine-terminating outlet glaciers of the Greenland ice sheet from continuous in situ GPS instruments” by A. P. Ahlstrøm et al.

Anonymous Referee #2

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General comment

In this manuscript the authors present and describe a very interesting dataset of continuous GPS measurements from eight outlet glaciers from Greenland. The data presented in the paper is very useful because it give measured data from the field over long, continuous periods covering all seasons of the year and thus also complement other more indirect data on velocities derived form remote sensing data. The data can thus be used to validate remote sensing data. The data show that the velocity of many outlet glaciers can vary significantly over short time periods. This is a very important result that has large implications for calving flux estimates in many cases. By com-

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parisons to remote sensing data they show that satellite based remote sensing data can give very reliable velocity estimates, but this requires that the period between the acquisitions is in the stable part of the year. If taken in other periods with large variability it is unlikely that remote sensing data are representative since they only give mean values between the two images and thus do not capture short term dynamic events.

The method and instruments they use are not new. It is well tested and described earlier, also the error assessments. However, the important message here is the data, and the reliability of the data. That is well described and the data is well presented in the figures. The data is also easily accessible.

The discussion and interpretation of the data is very short and limited. I miss much more explanations. However, it is not the scope of the paper to go into detailed discussions. The main point here is the data. There is a large potential for more detailed future use of the data from the individual outlets. For instance in modeling efforts in combination with other data and future datasets on surface and subglacial topography.

This data thus give a valuable addition in the possibilities to monitor and explain dynamic response of outlets from the Greenland ice sheet.

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