

***Interactive comment on “Stand-alone  
single-frequency GPS ice velocity observations on  
Nordenskiöldbreen, Svalbard” by  
M. A. G. den Ouden et al.***

**Anonymous Referee #1**

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This is mostly a methods paper presenting a description of a "low-cost" single frequency GPS system used to measure glacier motion, as well as an example application and validation study at a glacier in Svalbard.

The paper is pretty straightforward and not too surprising - single frequency data, with a large smoothing window, can resolve long-period motion.

I'm not altogether sure whether this paper is appropriate for this journal, since it is so methods-focused. I think it would be better to cast the paper as a description of velocity variability on the glacier, with more detailed discussion and investigation of the factors driving that variability. The paper should then be re-written so that the methods

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are presented for that task.

more detail about the GPS system used should be supplied.

some specific comments:

What exactly does "stand-alone" mean here?

How might the periodicity attributed to atmospheric noise effect the smoothed time series (and your interpretation of it)?

982, 22: This is debated. Since it's not central to the paper's motivation, I would simply say that ice dynamics represents a substantial contribution to sea level rise.

985, 5: "once"

985, 1st paragraph: are these details necessary?

987, 8-9 : do you mean vector summed?

992, 17: "advantage"

995, 14: 2000 euro actually seems pretty expensive for a standard L1 system, considering high precision systems, such as Novatel OEM's are ~300 euro and dual-frequency systems can be obtained for ~\$3000 euro.

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Interactive comment on The Cryosphere Discuss., 4, 981, 2010.