

Interactive comment on “Further summer speedup of Jakobshavn Isbræ” by I. Joughin and B. E. Smith

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Joughin and Smith (2013) provide an interesting and important update to the velocity variation of Jakobshavn Isbrae. The glacier has experienced a further increase in speed and greater summer acceleration. The comments below are all minor and just suggest additional information what would more strongly convey the spatial and temporal changes in velocity of this important glacier.

5462-19: It would extend the unique nature of the velocity change that began in the 1990's if you cited data on velocity back to 1964 from Table 1 (Pelto et al, 1989) that indicated consistency from 1964-1986, which then remained unchanged into the 1990's when your analysis begins... "Measurement of surface velocities at the calving front in July of 1964, 1976, 1978, 1985, and 1986 yielded a mean velocity of 20.6 m/d, variation

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in mean velocity from year to year is less than 1 m/d.” Not suggesting this need be plotted as location specific comparison not possible.

5463-2: This paper focuses on the main trunk of the Jakobshavn, which is at the southern side of the current terminus. There should be brief mention in the introduction of the rest of the terminus and its response. The entire terminus should also be visible in Figure 1. The northern terminus is important to generating the ice mélange that plugs the fjord for much of the year and has also retreated substantially. To put the two in context either the flux or the distance of the trough inland could be used to illustrate the lesser importance of the northern branch.

5464-14: Given the shortness of this paper and number of figures, I recommend including the supplemental figure in the regular paper at this point.

5464-21: Add perspective by identifying the percentage of summer acceleration prior to 2012. This is well shown for 2009 and 2010 in Figure 5 Joughin et al (2012). With Figure 2, an additional figure is not needed.

5463-13: A figure that displays the velocity variation and the bedrock high in a map view similar to Joughin et al (2008) Figure 2, extending further inland would be quite useful for the coming discussion.

5466-7: Figure 3 indicates the length along the main flow line of this high spot, how consistent across the width is this high spot, is it even wider or higher or not toward the northern and southern margins of the ice stream. This maybe unknown, if it is known than it is worth mentioning.

5467-1: This 12 fold speedup would represent approximately how much volume flux, given changes in thickness and width of the ice stream at M-26? If this cannot be quantified, qualitatively state likely change.

Interactive comment on The Cryosphere Discuss., 7, 5461, 2013.

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