

Interactive comment on “Balance between driving stress and basal drag results in linearity between driving stress and basal yield stress in Antarctica’s Siple Coast Ice Streams” by Jan Wohland et al.

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We thank the first reviewer for his/her constructive and helpful comments. We will provide a detailed response later, but would like to take the chance for a short comment on one important issue the reviewer pointed out: referring to Fig. 2 of the reviewer's comment we tried to reproduce the comparison of measured InSAR derived flow line velocities (Rignot et al. 2011) with those inferred from accumulation, ice thickness and inflow at the upper bound.

For the data we used (Bedmap2) and constant accumulation $a=0.5\text{m/a}$ we obtain a

considerable smaller misfit between the two (same order of magnitude, see Fig. 1). For instance, the main trend is well reproduced in Bindschadler and Ice Stream A. As far as Mercer and Whillans are concerned, our analysis underestimates surface velocities at about $x=250\text{km}$ and overestimates them closer to the grounding line. These deviations coincide well with areas of stream narrowing and widening (compare Fig. 1 in the discussion paper) and might thus be explained by geometrical properties. The remaining misfit could be explained by important side factors such as lateral drag, as the reviewer suggested. We will elaborate on this factors in our detailed response soon.

Interactive comment on The Cryosphere Discuss., doi:10.5194/tc-2016-191, 2016.

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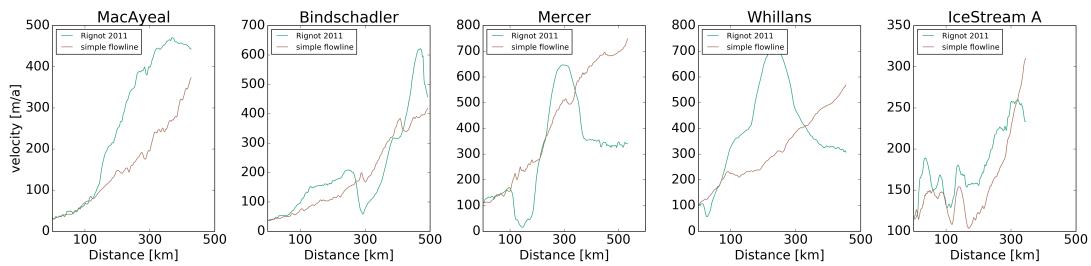


Fig. 1. Calculated vs. InSAR derived velocities for $a=0.5\text{m/a}$, compare Fig. 2 of first reviewer's response

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