

Interactive
Comment

Interactive comment on “Mechanical effect of mélange-induced buttressing on embayment-terminating glacier dynamics” by D. Seneca Lindsey and T. K. Dupont

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Received and published: 29 November 2012

We thank the editor and referees for their time and effort in this review process.

The idea that mélange, in winter, does not mechanically affect the force balance at Greenland outlet glaciers (Reeh et al., 2001; Joughin et al. 2008) is not obvious. Here we sought to present an upper bound on the ability of mélange to suppress longitudinal strain-rate and calving rate by making the material strength of the mélange the strongest it can be. This work is successful in demonstrating that, under the right conditions, mélange can affect calving and we provided a response curve of calving to mélange thickness that gives the character of the dynamic response. While we un-

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derstand the editors perspective based on the interactive discussion, we believe this work gives an upper bound on the potential mechanical impact of mélange on glacier dynamics and encourages scientists to rethink the role of mélange in relation to calving.

Interactive comment on The Cryosphere Discuss., 6, 4123, 2012.

TCD

6, C2321–C2322, 2012

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