

Interactive comment on “Increased rate of acceleration on Pine Island Glacier strongly coupled to changes in gravitational driving stress” by J. B. T. Scott et al.

J B T Scott

jbts@bas.ac.uk

Received and published: 20 April 2009

Thanks. Tony gave a very thorough review of the last submission of this paper. The main improvements made to the paper since then have been following Tony's suggestions.

What Tony has not said but I think he is probably hinting at is that the recent high changes in flux all of the way along the glacier may be due to a previous perturbation. Therefore the flow increase of over 4.1%, 171 km inland during 2007, might not need a similar order of flux increase to previously have occurred at the grounding line and then to have been transmitted up glacier. However annual flux increases at the ground-

C26

ing line were relatively small prior to 1996. Then from 1996 to 2000 increases at the grounding line were around 2.4 % per annum. If we were to assume that the perturbation causing the present acceleration started in 1996, then for the 2007 flux increase 171 km inland to be 4.1 % suggests a speed of propagation somewhere greater than 200 km per decade. If indeed this is the mechanism causing the acceleration. Eric Rignot (2006) states that the velocity increase from 2001 – 2002 at the grounding line was only 0.3 % per annum which then increased to 4 % per annum for 2002-2005 (it has increased even more since then) therefore it could be argued that the more likely start of the current very high acceleration was 2002, making the speed of propagation inland even greater.

Interactive comment on The Cryosphere Discuss., 3, 223, 2009.

C27