The Cryosphere Discuss., 6, C326–C327, 2012
www.the-cryosphere-discuss.net/6/C326/2012/

The Cryosphere Discussions

Interactive comment on "Surge dynamics on Bering Glacier, Alaska, in 2008–2011" *by* E. W. Burgess et al.

J. Turrin

jturrin@hotmail.com

Received and published: 18 April 2012

Evan,

I correlated the arcuate velocity fronts in your figure 3 with an addition-image created from adding together 2002 and 2009 Landsat images to highlight basal topography. The arcuate velocity fronts you found correspond exactly with basal troughs. I think the fast flow of ice over large troughs has created (thrust?) faults along which increased slip may occur. This would help explain how rapidly moving ice can exist alongside much slower moving ice, and the arcuate shape is typical of thrusts seen in other surging glaciers (Variegated for example).

A couple very good papers describe structural glaciology of Variegated Glacier's surge:

Martin Sharp, Wendy Lawson & Robert Anderson, 1988, Tectonic process in a surge-type glacier, J. of Structural Geology, 10(5), 499-515.

Wendy Lawson, Martin Sharp, Michael Hambrey, 1994, The structural geology of a surge-type glacier, J. of Structural Geology, 16(0), 1447-1462.

Best of luck,

Jamie

Interactive comment on The Cryosphere Discuss., 6, 1181, 2012.