



Velocity measurements on and near Ilulissat (Jakobshavn) Glacier, Greenland

M. Truffer (1,2), J. Amundson (1), M. Fahnestock (3), M. Luethi (2), R. Motyka (1), J. Brown (2)

(1) Geophysical Institute, University of Alaska Fairbanks (truffer@gi.alaska.edu), (2) VAW Glaciology, ETH Zurich, (3) Institute for the Study of Earth, Oceans and Space, University of New Hampshire

Ilulissat Glacier has been thinning, accelerating and retreating since 1998. Terminus velocities reached 13 km/yr, essentially doubling the 6-7 km/yr measured between 1985 and 1995 (Joughin et al., 2004). Since the summer of 2006 we have recorded velocities on and near the glacier using dual frequency GPS receivers, which were kinematically processed using a nearby GPS base station on bedrock. The 2007 summer velocities indicate that the lower 25 km of the glacier have reached their maximum velocity and perhaps even slowed down somewhat. Velocities measured farther upstream continue to increase. The inland ice on either side of the ice stream shows increased rates of convergence, even at 50 km from the ice front. Velocities have not only increased in magnitude since 1985, but they have also changed direction towards the ice stream, indicating the effect of draw-down from the ice stream acceleration on the surrounding ice. All targets show events of variable velocity with amplitudes of up to 10% of the background, but no sudden slip-events could be recorded.

Joughin, I.R., W. Abdalati, and M. Fahnestock. 2004. Large fluctuations in speed on Greenland's Jakobshavn Isbræ glacier. *Nature*, 432, 608-610.