

Fast-flow signatures on Kamb Ice Stream

Howard Conway (1), Laurence Gray (2), Felix Ng (3)

*(1) Department of Earth and Space Sciences, University of Washington,
Seattle, WA 98195, USA*

conway@ess.washington.edu

*(2) CCRS, 588 Booth Street,
Ottawa, Canada, K1A 0Y7*

laurence.gray@ccrs.NRCan.gc.ca

*(3) Department of Earth, Atmospheric and Planetary Sciences,
M.I.T., Cambridge, MA 02139, USA*

felix@mit.edu

Kamb Ice Stream (formerly called “Ice Stream C”) stagnated about 150 years ago. While its cause of shutdown is still under debate, we recently used surface-radar-detected internal stratigraphy to define ten “flow bands” within the northern tributary (K2). We calculated the downstream paleo-velocity distribution from continuity: results indicate a four-fold velocity increase downstream, implying pre-stagnation velocities in the trunk region exceeding 350 m/yr (Ng and Conway, 2004). Here we report and discuss spatial correlations between our surface-radar data and satellite-detected flow stripes. The flow stripes appear to originate from an inferred bed escarpment/ridge system upstream from the radar profiles and persist for several hundreds of kilometers downstream. We find some correspondence between “flow bands” defined by flow stripes with those delineated by radar-detected internal stratigraphy; flow-stripe patterns may also provide a useful fast-flow signature.