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Deformation of Eemian and Glacial ice at NEEM, Greenland

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New findings from deep Greenland ice cores and airborne radio echo sounding (RES) images show that basal ice flow is very unstable, and a basal layer of disturbed ice is often observed. At NEEM, Greenland this folding occurs at the boundary between the Eemian and glacial ice regimes, suggesting that differences in physical properties of the ice play a role in the disturbance. Past work in metallurgy (Burke, 1957) and ice (Hammer et al., 1978; Langway et al., 1988; Dahl-Jensen et al., 1997), suggests that impurity content controls grain evolution, and therefore deformation, which we hypothesize to be analogous to the differences in ice flow seen deep in the NEEM ice core. Here we present results of fabric, grain size, impurity content, and deformation studies from samples above and below this unstable boundary in the ice sheet.