

Micro-deformation of the NEEM ice core: implications for stratigraphic interpretation

Samyn D. ¹, Kipfstuhl, S. ², Svensson, A. ³, Weikusat, I. ² and Azuma N. ¹

¹ *Nagaoka University of Technology, Nagaoka, Japan*

² *Alfred Wegener Institute, Bremerhaven, Germany*

³ *Centre for Ice and Climate, Copenhagen, Denmark*

Band dipping and micro-folds are common cm-scale flow inhomogeneities observed in the deeper part of the NEEM ice core recently drilled in Greenland. These structural features are of importance for the treatment of the local ice flow behaviour as well as for dating and the interpretation of high-resolution chemical data. The latter issues are limited, first, by a poor understanding of processes causing flow variations vertically across the ice body, resulting in over-simplification of ice flow models. Another limitation lies in the fact that a strictly horizontal band layering is generally implied in dating and when interpreting vertical trace element profiles, which has shown limitations in the vicinity of the base of the ice sheet where the thickness of annual layers and the signal integrity are fading.

Based on recent ice fabric and structural studies from NEEM, we present ice flow experiments to be conducted in the laboratory and emphasize how characterizing flow disturbances in deep ice cores is relevant for the ice core community.