



Flow Pattern in the North East Greenland Ice Stream

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A characteristic feature on surface elevation maps of the Greenland ice sheet is a large fan-shaped depression, which extends from the central part of the ice sheet and broadens symmetrically towards the margin. This feature is due to the North East Greenland Ice Stream, which is draining the inner part of the ice sheet into outlet glaciers in North East Greenland.

By use of radio-echo data obtained by the Kansas ice-penetrating radar, we have composed profiles of the internal layering of the ice along and across the NE Greenland Ice Stream from Central Greenland to the ice fiord. Each layer is an isochrone, and the layers were followed to the NGRIP drilling site in Northern Greenland to obtain an accurate dating of the layers. We have then used a simple flow model to estimate accumulation rate, basal melting and changes in flow pattern along the profiles. We will discuss the effect of basal melting and the basal topography on the dynamics of the ice stream. A better understanding of the physical processes controlling the behaviour of such ice streams might offer the possibility for future incorporation of the dynamics of ice streams into current ice and climate models.