

# ABSTRACT FORM FOR ALL GSA MEETINGS IN 1995

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No 10269

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## TIMING AND EXTENT OF GLACIATION ON SOUTHERN BAFFIN ISLAND, NUNAVUT TERRITORY, ARCTIC CANADA, USING *IN SITU* COSMOGENIC ISOTOPES

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The vertical and lateral extent of icesheets in the eastern Canadian Arctic during the late Wisconsinan remains controversial. Recent work by Jennings (1993, 1995, in press) suggests that Laurentide ice extended beyond the mouth of Cumberland Sound during the late Wisconsinan, which conflicts with previous work on terrestrial deposits on adjacent Cumberland Peninsula where in many areas the late Wisconsinan ice limit has been mapped as less extensive than that of the Little Ice Age (Dyke, Miller, and Andrews, 1982).

We retrieved surface samples of crystalline bedrock and morainal boulders for measurements of cosmic-ray produced radionuclides *in situ* in quartz. In most instances, we sampled polished and striated top surfaces of stoss-lee bedrock forms and the largest boulders on moraine crests. Six striated bedrock surfaces from the Pagnirtung Pass and Fjord area have calculated cosmogenic exposure ages ranging from 5.5 to 8.5 ka (using production rates of Nishiizumi *et al.*, 1989). A sample collected from a bedrock surface exposed following retreat of a Little Ice Age glacier advance has very low isotopic abundances and suggests that even such short-lived advances are capable of removing isotopic evidence of prior cosmic ray exposure. These data suggest that Pagnirtung Pass and Fjord were ice scoured as recently as 8 ka, thus the Duval moraines once believed to be 60-80 ka could be late Wisconsinan in age.

Samples from 15 additional sites across Cumberland Peninsula that exhibit fresh bedrock polish and striae are being processed, as is a suite of samples of striated bedrock and unweathered boulders from a site well-constrained by radiocarbon-dated glaciomarine deltas near Iqaluit on Hall Peninsula. Additional sites have been sampled across the Duval moraines as high as 1000 m a.s.l. to test the weathering zone concept and the nunatak hypothesis.

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### ⑧ SPEAKER'S IDENTITY AND MAILING ADDRESS—PLEASE TYPE!

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