

## Old Arctic Upland Bedrock Surfaces Have Complex Burial and Cosmogenic Exposure Histories

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Deep, glaciated fjords and extensive uplands of lower relief, the "upper weathering zone," characterize coastal Baffin Island near the community of Pangnirtung (>65° N lat., 0-1000 m elev.). Along the fjords, erratics, streamlined features and moraines have been used to define the extent of ice that retreated from the fjord <10 ka (see poster by P T Davis et al.). Adjacent uplands are covered in part by autochthonous block fields, presumably derived from underlying outcrops; in other upland locations, heavily weathered, gneissic tors adjacent to rare, large erratic boulders indicate even the uplands were once ice-covered.

Measurements of 10-Be and 26-Al in seven samples collected from upland tors place quantitative limits on the exposure and geomorphic history of the upper weathering zone. 10-Be abundances indicate minimum effective exposure ages of 66 to 121 ky and maximum limiting erosion rates of 5 to 9 m/My. However, 26-Al/10-Be ratios (4.27 to 4.83) are lower than those produced by constant surface exposure indicating that all seven samples experienced burial during or after cosmic-ray exposure. Such burial could have been accomplished by a thick snowpack, by non-erosive ice frozen to the bed, or by till. As limits, the isotopic abundances can be interpreted as: A. indicating at least 75 to 175 ky of exposure followed by 400 to 600 ky of burial, or B. 1 to 1.8 My of exposure and/or slow erosion ( $\approx 1\text{ m/My}$ ) under 300-350 g/cm<sup>2</sup> of cover. In either case, the observed nuclide concentrations suggest that Baffin Island uplands have experienced minimal erosion either by ice or subaerial processes during the Late Pleistocene.

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