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**Ice-flow and deglacial chronology, Foxe Peninsula,  
southwest Baffin Island, Nunavut**

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The Foxe Peninsula lies north of the former Hudson Strait ice stream and along the southern margin of the Foxe Dome of the Laurentide Ice Sheet, placing the peninsula in a salient location to record glaciologically significant events such as marine incursion in Hudson Strait and Foxe Basin. Field data collected in 2006, as part of the Southwest Baffin Integrated Geoscience Project (SWBIG), have led to an improved model of ice flow and deglaciation in the area, based on ice-flow indicators, marine-limit features, distribution of erratics, till geochemistry and radiocarbon dating.

At full glacial conditions, ice flowed toward the east in Hudson Strait. In the eastern portion of the peninsula, ice

flow was predominantly to the southwest, flowing from the Amadjuak Ice Divide. The western sector experienced more changes in ice flow, where the potentially full ice configuration flow was toward the southeast, possibly from the Foxe Divide, radiating from the Foxe Dome. Later, flow in the western sector shifted southward, as an apparently greater control was exerted from the Amadjuak Divide.

Ice likely evacuated from the Hudson Strait relatively rapidly, initiating deglaciation of the Foxe Peninsula. This resulted in the highest and oldest glaciomarine features observed on the peninsula: ice contact deltas at 180 m with related radiocarbon ages of *ca.* 8.1  $^{14}\text{C}$  ka BP (9.0 cal ka BP). As deglaciation progressed, a re-advance formed large moraines (the 'Foxe moraines') on the western part of the peninsula. Elevated calcium in till samples, numerous carbonate erratics, and shell fragments that predate the last glaciation on the peninsula north of the Foxe moraines (i.e. ice proximal side) indicate a source for the material offshore and suggest higher ice sheet velocities and greater transport distances for this phase of ice flow compared to the rest of the study area. An age for this phase is bracketed by radiocarbon ages and marine limit observations distal to the moraine of *ca.* 7.7  $^{14}\text{C}$  ka BP (8.0 cal ka BP) at 150 m, compared to the age of marine limit proximal to the moraine some 700 years later at 132 m. Between the western and eastern sectors is a lowland area, where the presence of De Geer moraines suggests a grounded ice margin that retreated northwards. This marine incursion may relate to the collapse of the Foxe Dome, disintegration of the Amadjuak Divide, and ultimately formation of the Amadjuak Dome centred over Amadjuak Lake in the eastern sector. This resulted in a shift of ice-flow direction in the north of the eastern sector by more than 90 degrees, to flow to the northwest. In the eastern sector, marine limit elevations decline with more recent deglaciation in a gradual northward pattern with no re-advance detected, and in comparison to the western sector are younger by almost a thousand years.