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**Late Wisconsinan dynamics of the northwest Laurentide Ice Sheet on Banks Island, Northwest Territories**

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The paleogeography of the western Canadian Arctic Archipelago during the last Ice Age has remained largely speculative over the last half-century. Despite regional mapping studies aimed at characterizing the Quaternary geology of the islands, chronologies constraining the nature and timing of Late Wisconsinan glaciation remain sparse. The focus of this study is the evolution of the northwest Laurentide Ice Sheet on Banks Island and the adjacent marine channels. Detailed mapping of the glacial geomorphology and a new radiocarbon chronology constrain the maximum extent of Late Wisconsinan glaciation and delineate the pattern and timing of subsequent ice sheet retreat. The results demonstrate that the maximum extent of the northwest Laurentide Ice Sheet lay west of Banks Island on the Beaufort Sea Shelf and that by ~14 cal ka BP the ice margin was situated in the central interior of island. Following this, widespread ice sheet retreat was interrupted by a phase of moraine deposition terminating at ~12.9 cal ka BP, during which the Jesse moraine belt was constructed. High rates of ice sheet retreat characterized the interval ~12.9–12.5 cal ka BP, which included final ice sheet withdrawal from Banks Island and Amundsen Gulf. This contrasts with the latter two-thirds of the Younger Dryas chronozone, ~12.5–11.65 cal ka BP, which was characterized by general ice marginal stability. Further, the withdrawal of the northwest Laurentide Ice Sheet across Banks Island included concomitant changes in the position and geometry of local ice divides. The reconstructed dynamical behavior of the northwest Laurentide Ice Sheet provides new insights regarding ice sheet responses to late-glacial climate and relative sea level change, among other variables.