

seem similar. On every summit visited, erratics yield ages corresponding to the Younger Dryas chron, moraines date from LGM (26–18 ka) to Holocene, yet summits (protected under thin cold-based ice) have not been eroded. Summit and valley ice separated early in deglaciation. In some locations the intervening ice-free valley walls have been previously misinterpreted as a pre-LGM weathering zone. Nunataks may have persisted near the coast, e.g. in the Four Peaks region, which comprises high coastal pyramids with insufficient catchment for snow accumulation.

On the basis of the cosmogenic nuclide data, ice sheet simulations, and related geological observations, particularly in type-localities used to support the hypothesis, the Nunatak Hypothesis as applied to Newfoundland and Labrador is rejected. To explain the abundance of disjunct floral and faunal species, cliff-face refugia is favoured over summit refugia. Numerous disjunct species in cliff habitats persist worldwide, and the isolation of species in western Newfoundland could be due to marine transgression or glaciation.

Collapse of the Newfoundland Ice Cap and evidence against the Nunatak Hypothesis

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During the last glaciation, it is likely that Newfoundland supported its own ice cap. At its maximum extent, a non-equilibrium dynamic and mass balance was forced by calving margins everywhere except where the cap abutted the Laurentide Ice Sheet. It is likely that all summits were glaciated, based on measurements of ¹⁰Be and ²⁶Al on the highest and most weathered summits in western, central, and southern Newfoundland. However, some cliff faces may have remained uncovered. Although summits with thin ice deglaciated early (20 ka) the majority of the island (excluding the Avalon and Burin Peninsulas) deglaciated rapidly (the cap collapsed in about two thousand years) after 13.5 ka. Areas with thicker ice persisted through the Younger Dryas chron (12.8–11.5 ka). Areas of thinner ice cover and areas under ice divides (or ridges) experienced little or no glacial erosion.

Despite having been covered by the Laurentide Ice Sheet, the glacial dynamics, erosion, and extent in northern Labrador