



Late Pliocene glaciation and landscape evolution of the NW Peninsula of Iceland

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The landscape of NW Iceland has been extensively modified by glacial activity, but the timing and impact of major, glacial maxima style ice sheet advances is unknown. New geochemical and chronological data from two Skagafjall tephra (Ópoli and Hjal-lanes) and their bracketing high altitude ice-dammed lake sediments constrain a phase of Late Pliocene macroscale glacial activity and landscape evolution processes. Most significantly, the 2.26 ± 0.11 Ma fission-track age of the rhyolitic Ópoli tephra is compatible with reversed palaeomagnetic polarity data from its airfall and reworked components and bracketing sediments. The main implications are: (i) Late Pliocene ice sheets covered more of the Icelandic land mass than previously thought, probably extending onto the current NW continental shelf; (ii) the heavily incised fjord landscapes of NW Iceland could have been fully-developed features in the Late Pliocene and (iii) the high altitude geomorphological features and sedimentary sequences at Skagafjall have likely survived being overridden by ice sheets during at least one glacial maximum advance.