



Paraglacial fluvial bedrock incision in postglacial landscapes: the NW Scottish Highlands

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Glacial landscape forms are inherited by rivers following deglaciation. Hillslopes and valley floors configured by glacial erosion control the distribution of bedrock channels and potential sites for fluvial incision. The importance of 'stream power' parameters, channel slope and drainage area (discharge), in controlling the rate of incision is widely accepted, but the rate, timing and mechanisms of incision have yet to be quantified in these settings. The dual controls of glacially conditioned bedrock slopes and sediment supply set two of the key boundary conditions for temporally and spatially dynamic fluvial bedrock incision. Measurement of incision rates in these settings is key to understanding the influence of controls on fluvial erosion, and the role of the process in long-term evolution of deglaciated landscapes.

In tectonically-passive, hard-rock terrains, such as the Scottish Highlands, incisional fluvial features such as bedrock channels, gorges and waterfalls are common on glacially carved valley steps. Here we report preliminary data on fluvial incision rates measured with cosmogenic ^{10}Be . Our results confirm a postglacial age of bedrock straths in the NW Scottish Highlands and indicate a vertical incision rate of 0.3 mm/yr into resistant quartzites. Further work will explore erosion mechanisms and rates of incision across the Scottish Highlands, and assess controls on fluvial incision, including the potential role of paraglacial sediment.