2010 GSA Denver Annual Meeting (31 October –3 November 2010)

Paper No. 22-11

Presentation Time: 11:00 AM-11:15 AM

MORAINE CHRONOSEQUENCE OF THE DONNELLY DOME REGION, ALASKA

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^{10}Be exposure ages (n=28) from moraines in the Delta River Valley, a reference locality for Pleistocene glaciation in the northern Alaska Range, indicate that at least part of the Delta moraine stabilized during MIS 4/3, and that the Donnelly moraine stabilized ~17 ka. These ages correlate with other dates from the Alaska Range and other regions in Alaska and suggest synchronicity across Beringia during pulses of late Pleistocene glaciation. The ages do not support the previous correlation of the Delta glaciations with MIS 6. Several sample types were collected: boulders, single clasts, and gravel samples (amalgamated small clasts) from around boulders as well as from surfaces devoid of boulders. Comparing ^{10}Be ages of these sample types reveals the influence of pre/post-depositional processes, including boulder erosion, boulder exhumation, and moraine surface lowering. These processes occur continuously but seem to accelerate during and immediately after successive glacial episodes. The result is a multi-peak age distribution indicating that once a moraine persists through subsequent glaciations the chronological significance of cosmogenic ages derived from samples collected on that moraine diminishes significantly. The absence of Holocene ages implies relatively minor exhumation and/or weathering since 12 ka.

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General Information for this Meeting

Session No. 22
OIS 4 and 3 Were Bigger Than You Think—Geomorphic Evidence from Glacial, Fluvial, Lacustrine, and Eolian Records
Colorado Convention Center: Room 709/711
8:00 AM-12:00 PM, Sunday, 31 October 2010

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