

# Provenance of Ice Rafted Detritus peaks in the Penultimate Glaciation using $^{40}\text{Ar}/^{39}\text{Ar}$ dating

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## Abstract

The Heinrich events—massive discharges of icebergs by the Laurentide Ice Sheet into the North Atlantic—of the last glacial interval have been extensively studied, and issues such as the provenance of the ice rafted detritus (IRD) that defines the Heinrich layers are fairly well constrained, with the Churchill province of the Hudson Strait region being the most probable source. The question remains, however, as to whether Heinrich events or Heinrich-like events occurred in previous glacial periods. Our initial investigations into the penultimate glaciation (Marine Isotope Stage 6) include both a magnetic susceptibility (MS) survey of over a dozen cores in the North Atlantic, along with a more in-depth examination of one core in particular, V28-82, a core in which the Heinrich events of the most recent glacial interval are prominent. In the MS survey, the Heinrich events of the last glacial stand out as prominent MS peaks, in particular events H1, H2, H4, and H5. In none of the cores do any such peaks occur in Stage 6, suggesting perhaps a lack of Heinrich events during this time. Our investigation of V28-82, however, reveals two distinct IRD peaks, one at the termination of Stage 6. This study proposes to use  $^{40}\text{Ar}/^{39}\text{Ar}$  dating of individual hornblende grains to constrain the source(s) of the IRD in these two peaks.