

Glacial North Atlantic variability during the past 300,000 years.

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A combined record from Sites DSDP 609/IODP U1308 spans the last three glacial intervals. Hudson Strait (HS) Heinrich Events appear to slightly precede weak East Asian summer monsoon events, as indicated by the absolutely-dated Hulu and Sanbao speleothem records. While the Stage 8 interval exhibits similar variability as the last glaciation (i.e., HS Heinrich Events and well-defined IRD cycles), North Atlantic conditions during the penultimate glaciation suggest an anomalously stable Laurentide Ice Sheet (LIS). No large ice rafting events are detected in multiple locations across the North Atlantic, and the flux of IRD during "H11" (not sourced from the HS) is an order of magnitude lower than the average for those of the last glaciation. In the absence of significant millennial events, orbital solar insolation appears to have been the primary driver of climate variability. The Site U1308 record of Icelandic volcanic glass indicates sea ice expansion corresponding to low precession and a weakened East Asian Monsoon. If the Eurasian Ice Sheet was significantly larger during the penultimate glaciation, but total ice volume was similar to the last glaciation, glacial stability during Stage 6 could have been the result of a small LIS that was less prone to surging and large freshwater release.