



Cosmogenic Nuclide ^{36}Cl Dating of Glacial Drift and jökulhlaups: Jökulsá á Fjöllum channel, Iceland

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Field evidence and previous research suggests numerous jökulhlaups originated from Vatnajökull glacier northward through the Jökulsá á Fjöllum channel in Iceland, however, the chronology of these events has never been dated. Using field data and hydraulic modeling results, seven glacial drift basalt boulders (erratics) were sampled for ^{36}Cl cosmogenic nuclide exposure age dating for the purpose of chronicling the Holocene sequence of jökulhlaup outbursts through the Jökulsá á Fjöllum channel and to correlate these occurrences to paleoclimate or volcanic events. Previous work suggests that there have been at least 6 major outburst events since the Younger Dryas. This work presents age results and estimates of age disparity due to atmospheric, shielding, and erosion factors from glacial drift boulders sampled from the channel's bed, margins, and floodplain. Ages range from $\sim 11,550$ BP (Preboreal to Younger Dryas) on the outer most elevated margins of the floodplains to ~ 1570 BP (Subboreal to Subatlantic) for boulder drift sampled near the lowest elevation of the channel bed at the time of flooding. Three erratic boulder ages correlate to at least one large jökulhlaup event in the Atlantic to Boreal timeframe (~ 4440 to ~ 7470 BP). A new set of eight ^{36}Cl ages will be presented from recent fieldwork. These dates add to earlier field and modeling work to constrain the timing of fluvial geomorphological processes and landforms through Jökulsá á Fjöllum channel.