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10Be dating of boulders on moraines from the last glacial period in the Nyainqentanglha mountains, Tibet

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Chronologies of glacial advances during the last glacial period in the Nyainqentanglha mountain range may provide constraints on the past climate in a transition zone of the Asian monsoon. We present 15 new 10Be exposure ages from two moraines in the Payuwang valley, on the north slope of the range. The inner moraine has exposure ages ranging from 18.0±1.7 to 30.6±2.8 ka (n=10), with a mean age of 23.8±4.0 ka, corresponding to the global Last Glacial Maximum (LGM). The outer moraine yields exposure ages ranging from 18.0±1.6 to 39.9±3.7 ka (n=5). Evidence for weathering leads us to view the oldest age as a minimum age, placing moraine formation during MIS3. Chronologies from the last glacial period from south slope of the Nyainqentanglha support this interpretation. Thus, there appears to have been a local LGM (LLGM) during MIS3 and a more limited glacial advance during the global LGM. Glacial advances during MIS3 in the Nyainqentanglha may correlate with millennial-scale climate change (Heinrich events).