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Late Pleistocene Glaciation of the Vostoch Range, Northern Mongolia

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The glacial geochronology of the Vostoch Range of Mongolia's Hövsgöl province is not well understood. Relative ages of the moraine complexes from late Pleistocene glaciations in the Horoo Gol (river) Valley (51.570° N, 100.462° E) at the northern end of Lake Hövsgöl were determined via field mapping and measurements of boulder frequency, size, and mass strength. The morphology of the valley's moraines suggests a single valley glacier, approximately 50 km long, during the Last Glacial Maximum (LGM). The valley moraine has a distinct front and abundant large

boulders, whereas the piedmont moraines have more subdued topographic profiles and fewer, more weathered boulders. Cosmogenic ¹⁰Be dating of granitic boulders on the moraine crests gives surface exposure ages of 20 +/- 9 ka for the piedmont moraines and 18 +/- 6 ka for the valley moraine. These dates correspond to the LGM Sartan Glaciation (Marine Isotope Stage 2). Accumulation area ratio and toe-summit altitude method calculations yield a mean reconstructed equilibrium-line altitude (ELA) of 2213 meters for the LGM glacier in the Horoo Gol Valley.

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