



Timing of glacier expansion during the last Glacial in the northern and central Tien Shan, Kyrgyz Republic by OSL dating

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Optically simulated luminescence (OSL) dating was applied to glacial deposits and adjacent loess from moraines in the Terskey-Alatoo Range in the northern Tien Shan and the At-Bash Range in the central Tien Shan, eastern Kyrgyz Republic. The timing of two large expansions during the last glacial in the two study areas was synchronous; Stage I and II moraines both in the Terskey-Alatoo and At-Bash Range dated to marine isotope stage (MIS) 4-early-MIS3 and late-MIS3-MIS2. The two expansions during the last Glacial coincided with global cold periods and with the advances of the Northern Hemisphere ice sheets. The greater expansion occurred in MIS4-early-MIS3 than in late-MIS3-MIS2 in both study areas suggests that the climate during MIS4-early-MIS3 was more humid than during late-MIS3-MIS2. The difference of the glacier expansions coincides with the variations of the Siberian high pressure, which restricted the impact of the Westerlies.