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Abstract Title:
Optically stimulated luminescence dating of beach ridges of Selin Co (Lake), Central Tibet, and its environmental implications

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Geomorphology and Environmental change on the Tibetan Plateau-II

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Abstract:
As an indication of past shorelines, beach ridges are critical to reconstruct past lake level fluctuations and paleo-climate and environment change. Here we present an initial study in dating four beach ridge groups in Selin Co (Lake), Central Tibet, using optically stimulated luminescence (OSL). The highest/oldest group (>100 m higher than the current lake-level) is dated back to 67.9±2.4 ka BP, corresponding to the early stage of the Last Glaciation (marine isotope stage (MIS) 4). The other three groups produce OSL ages of 30.4±2.9 to 18.6±1.7, 12.5±1.6 to 9.2±0.5, and 6.9±0.2 ka BP, most likely corresponding to cold or wet climate periods of the late stage of Last Glaciation (MIS 2), Deglaciation, and Holocene Hypsithermal, respectively. From the plateau scale, these four beach ridge groups are synchronous with advances or standstills of Himalayan glaciers, indicating similar climate controls across the central and southern Tibetan Plateau. This is consistent with the conclusion from nearby ice core research that this area is affected by the south Asia monsoon. In addition, the development of lakes and beach ridges in central Tibet further support that no plateau-scale ice sheet covered the Tibetan Plateau during the Last Glaciation.

Keywords:

Selin Co, beach ridges, Tibetan Plateau, OSL dating, Marine Isotope Stage (MIS)

New Query