



In-situ cosmogenic ^{10}Be denudation rate variations along active tectonic ranges at the NE edge of the Tibetan Plateau

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Using in-situ cosmogenic ^{10}Be concentration of quartz in stream sediments, we have quantified the catchment-wide denudation rates of two tectonically active ranges: the Yumu Shan and the western Long Shou Shan. These growing mountains are bounded by active thrust faults and are located in the foreland of the northeastern Tibetan Plateau. They offer the opportunity to study the competing effects of uplift and erosion during the early stage of mountain building, because of 1) reasonable well constrained tectonic uplift rate and 2) along-strike variations in relief, slope and lithology.

Measured denudation rates are variable and span from ~ 20 to ~ 550 mm/ky. These values indicate that tectonic uplift (600-1200 mm/kyr; Hetzel et al., 2004) exceeds erosion, supporting the view that these mountains continue to grow. The observed denudation rates show two linear trends when plotted against mean slope and mean relief catchments. In both diagrams, one trend is steep and includes all weak Mesozoic rock values, while the other one is gently inclined and associated with resistant Palaeozoic rocks.

Reference: Hetzel, R., Tao, M., Stokes, S., Niedermann, S., Ivy-Ochs, S., Gao, B., Strecker, M.R., Kubik, P.W. (2004). Late Pleistocene/Holocene slip rate of the Zhangye thrust (Qilian Shan, China) and implications for the active growth of the north-eastern Tibetan Plateau, *Tectonics* 23 (6), TC6006, doi:10.1029/2004TC001653.