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Slip rate determination of thrusts along the edge of NE Tibet from in situ-produced cosmogenic nuclides

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The Qilian Shan forms a seismically active fold-and-thrust-belt along the NE margin of the Tibetan Plateau that evolved during the Neogene-Quaternary and continues to advance north-northeastward (Meyer et al., 1998; Tapponnier et al., 2001). Active thrust faults transecting Late Pleistocene alluvial fan deposits form spectacular fault scarps that are locally incised by rivers which form flights of terraces. By combining structural investigations, satellite imagery, topographic profiling, surface exposure, and luminescence dating we have determined slip rates for several thrust faults (Hetzel et al. 2002, 2004a,b). Our results are consistent with geologic and GPS constraints, which suggest that NNE-directed shortening across the northeastern Tibetan Plateau is distributed on several active faults with a total shortening rate of about 4 to 10 mm/yr.

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