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Late-Miocene thrust fault-related folding in the northern Tibetan Plateau: Insight from paleomagnetic and structural analyses of the Kumkol basin

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Abstract

Constraints on the timing and style of the Tibetan Plateau growth help spur new understanding of the tectonic evolution of the northern Tibetan Plateau and its relation to the India-Asia continental collision. In this regard, records of tectonic deformation with accurate ages are urgently needed, especially in regions without relevant studies. The Kumkol basin, located between two major intermontane basins (the Hoh Xil and Qaidam basins), may hold clues to how these major basins evolve during the Cenozoic. However, little has been known about the exact ages of the strata and tectonic deformation of the basin. Herein, detailed paleomagnetic and structural studies are conducted on the southern Baiquanhe section in the central Kumkol basin, northern Tibetan Plateau. The magnetostratigraphic study indicates that the southern Baiquanhe section spans a time interval of 8.2-4.2 Ma. Well-preserved growth strata date to 7.5 Ma, providing evidence for a significant thrust fault-related folding. This thrust-related folding has also been identified in the Tian Shan foreland and in the northern Tibetan Plateau, most likely implying a pulsed basinward deformation during the

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