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Neotectonics of the eastern margin of the Tibetan Plateau: new evidences for the change from Early Pleistocene transpression to late Pleistocene-Holocene strike-slip faulting

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We present in this paper new evidences for the change during the Quaternary in kinematics of faults cutting the eastern margin of the Tibetan Plateau. It shows that significant shortening deformation occurred during the Early Pleistocene, evidenced by eastward thrusting of Mesozoic carbonates on the Pliocene lacustrine formation along the upper stream Minjiang fault zone and by development of the transpressional ridges of basement rocks along the Anninghe river valley. The Middle Pleistocene seems to be a relaxant stage with a local development of the intramontain basins particularly prominent along the Minjiang Upstream and along the southern segment of the Anninghe river valley. This relaxation may have been duo to collapse of the thickened crust attained during the late Neogene to early Pleistocene

across this marginal zone. Since the late Pleistocene and till now, the eastern margin of the Tibetan Plateau has been predominated by strike-slip faulting with sinistral strike-slip on faults bounding the Minshan Uplift, dextral strike-slip on the back Longmenshan fault zone and sinistral strike-slip on the Anninghe fault. The central Longmenshan fault zone behaved during this stage as reverse and dextral strike-slip fault. This change in fault kinematics during the Quaternary allows a better understanding on the mechanism by which the marginal ranges of the plateau has been built through episodic activities.

Key words: fault kinematics; transpression; strike-slip faulting; Quaternary, eastern margin of the Tibetan Plateau; Pliocene Xigeda lacustrine formation.

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