

Continental tectonics in Northwest China

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Tibet and adjacent mountains have been uplifted up to 7000-8000m or even 10000m (the amount of erosion included), and the south-north shortening achieves ca. 2000km, due mainly to the collision and juxtaposition of the Indian sub-continent with the central Asian continent since Miocene. Sinistral strike-slip shearing has caused displacement to 400km along the Altyn fault zone, and tectonic zones and original basins are displaced. The Zhunge'er, Tulufan and Yining blocks at the north belong to the Hasakestan plate. The Tarim, Qaidam and Alashan blocks constitute the West China plate, with a basement of Jinning Stage (800-900Ma). The plate is of the Yangtze type non-stable craton in Paleozoic and, together with the Yangtze-South China, Indosinian, Australian plates composed the Gondwana continent during late Sinian-Early Paleozoic. The blocks broken later up from the continent were tectonically displaced during late Paleozoic-Indosinian stage, and further broken up and displaced during Himalayan stage. The Qiangtang, Lahasa and Indian blocks are derived from the breakup of the Gondwana super-continent. The North Qilian Mountain is an Aulacogen formed due to the intra-continent breakup of the West China craton during early Paleozoic. The west extension of the aulacogen goes to the Manjia'er-Awati depression at north central Tarim due to the sinistral displacement by the Altyn fault in Cenozoic. The paleo-Qilian Mountain formed in Paleozoic disappeared during Paleozoic through Triassic. The formation of the present Qilian Mountains occurs from Pliocene to early Pleistocene during the uprising of the Tibet plateau.