

Tectonic evolution of the western Kunlun and Karakorum mountains—Some new observations from a multidisciplinary Geoscientific Transect (MGT) in NW. Tibet

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New results from MGT reveal that the Tarim block (basin) was subducted, with gently dipping, to the Kunlun Mts. The depths of Moho from north to south are 45-50Km in S.Tarim to 65-70Km in the W. Kunlun Mts. A low velocity layer occurs at the depth of 15-30Km, which may be the decollement in the upper crust. A “delamination Crack” might have been formed in the lower crust-lithosphere lid, causing the intrusion of alkaline magma along the southern margin of the W. Kunlun Mts.

A detailed research for forming and evolving of the Kudi ophiolite in the W. Kunlun Mts. reveals that there was a “limited ocean basin” during the late Proterozoic to early Palaeozoic, which might have been subducted in Silurian-Devonian and formed the oldest suture in the north of the Tibet plateau.

A suture zone consisting of H. P/T metamorphic blueschist, ophiolitic Melange and olistostrome in NW. Tibet has been revealed recently, which may extend to NW. connecting with MKT in N. Pakistan.

A study of the Fission track thermochronology indicates that the W. Kunlun Mts. has been undergone a pulsatory uplift since 20-18Ma. and a rapid uplift after 3Ma.

A model of collision between the Indo-Pakistan subcontinent and the Eurasian blocks of Tarim and N.Tibet has been illustrated.