THRUSTING AND BACK-THRUSTING SYSTEMS AND THEIR SEGMENTATION OF FORELAND BELTS OF THE SOUTHWEST TARIM BASIN

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In the foreland belts of Pamir-West Kunlun (PWK) and Southern Tienshan (ST), the thin-skinned thrusting systems (tsts) from mountains thrusting to the Southwest Tarim Basin (STB) and the back-thrusting systems (bts) from basin thrusting to the adjacent mountains were developed. The different active structural systems can be segmented: Kazike-Arte deformed bts and tsts, Yigeziya tsts, Qimugen arcurate bts, Qipan thrusting and faulted-folded system, Kekeya tsts, Keliyang-Yuliqun bts, Sangzhu-Duwa tsts and Cele arcurate thrusting system along the PWK foreland belts, and Kalajun-Kalpin tsts, Atushi-Bapanshuimo bts along the foreland belts of ST.

Through the study of aerial magnetic anomalies and many seismic profiles, we found that all bts and their triangle zones were formed over the NE-SW basement depressions of STB (thickness of sedimentary covers 10 km). We also found that all tsts were formed over the basement uplift belts of STB (thickness of sedimentary covers 10 km, 6-10 km in general).

In the basement depression of the basin, the bts and their triangle zones could be transformed to tsts due to continuous compression. The largest displacement of the tsts or bts is located in the convex part but the shortest displacement is located in the conjunction area of two segments. The arcurate tsts and bts display different displacements along foreland belts.