



Current Tectonic Stress Field in the Northeastern Margin of Tibetan Plateau

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Using the broadband seismic records from regional network, we determined the focal mechanism solutions of more than 900 earthquakes from 2009 to 2015 in the northeastern margin of Tibetan Plateau (93°-109°E, 30°-39°N). We also collected the published FMS in the study area, and then derived the tectonic stress field through a damped linear inversion method using the FMS obtained in this study and those collected. Inversion results show that the maximum principle stress axes (σ_1) in the entire study area are nearly horizontal. The σ_1 direction is NE-SW in the west and rotates clockwise to nearly E-W and NW-SE to the east. QiangTang block and the western Bayan Har block are in the strike-slip faulting stress regime, while the eastern Bayan Har block and the Qaidam-Qilian block are in the thrust faulting stress regime. The σ_1 direction is NE-SW in the southwest of Haiyuan fault, indicating that the crust is NE shortening. All of these suggest the continuity of the push to Eurasian Plate by Indian Plate. This stress pattern is consistent with the GPS velocity and the stress measurement in the surface or shallow crust, which indicates that the recent state of stress in crust is possibly coherent from bottom to top.