

Field Study of the 12 February 2014 Yutian Ms7.3 Earthquake: A Special Surface Rupture Zone

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On February 12, 2014, a Ms7.3 earthquake struck the eastern region of the West Kunlun Mountains in Yutian County, Xinjiang. Immediate (Feb 20th) field investigation following the earthquake shows that it produced surface ruptures at an altitude of 4600~5100 m. The surface rupture zone consists of a series of en-echelon tensional, shear-tensional to shear cracks, mole-tracks, and sag ponds. Striking NEE–SWW with a total length of about 25 km (Figure 1), the surface rupture zone is characterized by left-lateral strike slip motion with normal component. Maximum sinistral displacement along the surface rupture zone is about 1 m. What is particularly interesting here is that the surface rupture is distributed along two parallel faults, the Ashikule-Xor Kol fault and the south Xor Kol fault, which is rarely seen. The seismogenic fault of the earthquake is one splay at the southwestern end of the Altun fault. This fault combined with the Gozha Co fault and the Longmu Co fault constitutes a “new Altun fault”.

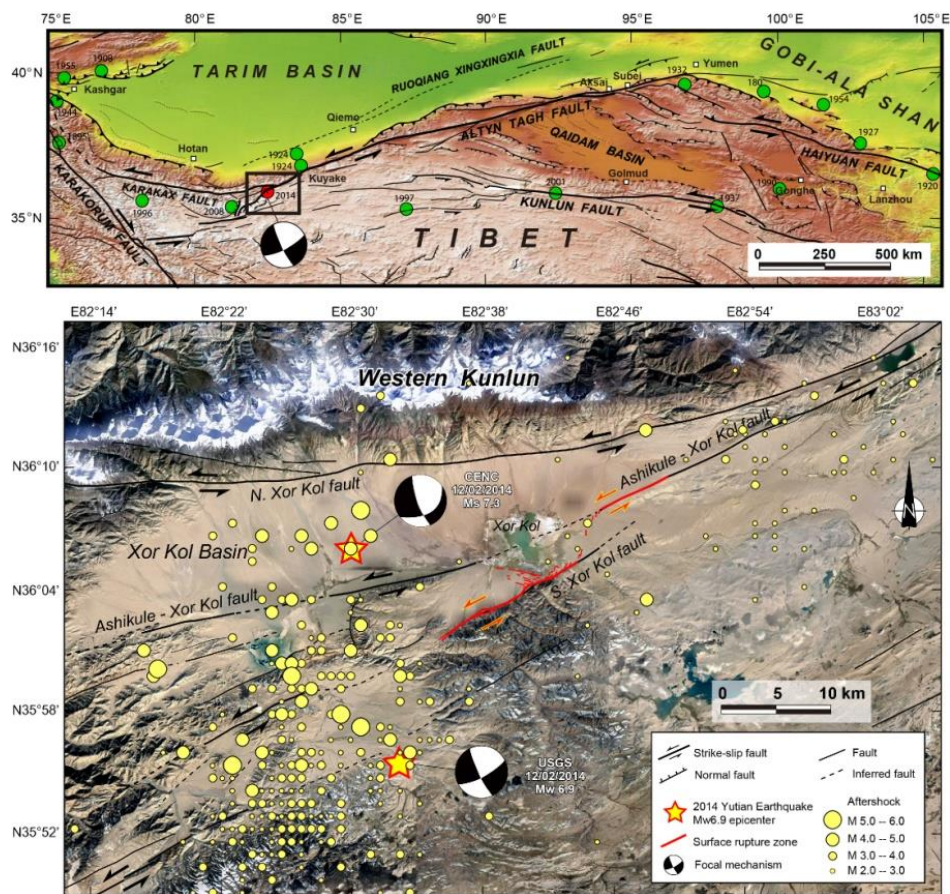


Figure 1. Active faults in northern Tibetan Plateau (upper) and surface rupture zone of the 12 February 2014 Yutian earthquake (lower)

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