

Evidence for Paleoearthquakes in the Xilinhot District, Inner Mongolia, Northern China

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Paleo-surface rupture, fissure, liquefaction, Quaternary stratum deformation and geomorphic features in the Xilinhot-Xiwuqi region, Inner Mongolia, northern China, are described and seismic intensity is determined based on estimation for the miezoseismal areas and magnitudes of paleoearthquakes. Trenching investigations reveal a huge paleoseismic surface rupture and fissure zone with a width of more than 200 m. Field investigation and interpretation of remote sensing image demonstrate that active faults related to paleoearthquakes are ~ 200 km long. The geologic and geomorphic evidence indicate that one large earthquake with magnitude of about 7.5 or multiple paleoseismic events of $M \ge 6.8$ have occurred in the studied area since 13 ka BP. One of the paleo-meizoseimal areas is nearby Xilinhot. Strong earthquakes have repeated since 53 ka BP in the Xilinhot district. Epicentral intensity is estimated to be at least(MM) and seismic intensity should be larger than in the studied area and vicinity, which is consistent with recent seismic activities in the Xilinhot district. The results provide very important data for the designing of engineering construction to resist future potential large earthquakes. Keywords: Seismic intensity, active fault, surface fissure, paleoearthquake, northern China

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