

STRUCTURAL GEOLOGY OF THE WEST DEREN AND DEREN FAULTS, SOUTH-CENTRAL MONGOLIA

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There are at least three faults located within the Deren Seismic Zone of south-central Mongolia. These include the Deren Fault, West Deren Fault and Bīrgèd Fault. The purpose of this research project was to investigate the structural geology and historic seismic activity of the Deren and West Deren faults. Based on satellite image interpretations and field mapping along the Deren fault, it appears that the fault strikes N-S and extends approximately 30km. The Deren Fault is seismically active with a visible scarp at the surface that can be identified for several kilometers produced by a large-scale earthquake that occurred in the late 1990's. The West Deren Fault is located between 46°15' and 46°25' latitude and 105° and 106°30' longitude, south of the city of-Ulaanbaatar, Mongolia. It appears that the West Deren Fault is separate from the Deren Fault due to the change in strike from N-S to E-W. There is a distinct possibility that the West Deren fault is a continuation of the Deren Fault. The West Deren Fault was located by measuring attitudes on either side of the E-W trending valley within the study area specified. Although data indicates similar strikes ranging from E-W to N70°E on either side of the West Deren Fault, the dip of bedding is dominated by a range of 70° to 87° N on the northern side of the fault and a range of 50° to 60° N along the southern side of the fault. To the west, the fault truncates the Bīrgèd Fault, which continues to the SW. West of this truncation the degree of erosion across the terrain rendered the fault undetectable. The fault was easily identified to the east until approximately 106°5' longitude, east of which the surface is significantly more eroded, resulting in difficulty of directly locating the fault. Observations to the northeast indicate that the surface expression of the West Deren Fault is absent.