



Central Asia Active Fault Database

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The ongoing collision of the Indian subcontinent with Asia controls active tectonics and seismicity in Central Asia. This motion is accommodated by faults that have historically caused devastating earthquakes and continue to pose serious threats to the population at risk. Despite international and regional efforts to assess seismic hazards in Central Asia, little attention has been given to development of a comprehensive database for active faults in the region. To address this issue and to better understand the distribution and level of seismic hazard in Central Asia, we are developing a publically available database for active faults of Central Asia (including but not limited to Afghanistan, Tajikistan, Kyrgyzstan, northern Pakistan and western China) using ArcGIS. The database is designed to allow users to store, map and query important fault parameters such as fault location, displacement history, rate of movement, and other data relevant to seismic hazard studies including fault trench locations, geochronology constraints, and seismic studies. Data sources integrated into the database include previously published maps and scientific investigations as well as strain rate measurements and historic and recent seismicity. In addition, high resolution Quickbird, Spot, and Aster imagery are used for selected features to locate and measure offset of landforms associated with Quaternary faulting. These features are individually digitized and linked to attribute tables that provide a description for each feature. Preliminary observations include inconsistent and sometimes inaccurate information for faults documented in different studies. For example, the Darvaz-Karakul fault which roughly defines the western margin of the Pamir, has been mapped with differences in location of up to 12 kilometers. The sense of motion for this fault ranges from unknown to thrust and strike-slip in three different studies despite documented left-lateral displacements of Holocene and late Pleistocene landforms observed near the fault trace.