

Shallow seismic imaging of the active fault integrated with other geophysical methods

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As the framework of 60 years of development of Astronomical and Geophysical science in modern Mongolia, various geophysical methods (electrical tomography, ground-penetrating radar and high resolution reflection-refraction seismic profiles) were used to imaging an active fault in depth range between few decimeters to few tens meters. An active fault was fractured by an earthquake magnitude 7.6 in 1967. After geophysical investigations, trench excavations were done at the sites to expose fault surfaces. The complex geophysical survey in the Mogod fault, Bulgan region of central Mongolia shows an interpretable reflection arrivals range of 5 m to 50 m with the potential for increased resolution. Reflection profiles were used to help interpret the significance of neotectonic surface deformation at the earthquake active fault. The interpreted profiles show a range of shallow fault structures and provide subsurface evidence with support of paleoseismologic trenching photos, electrical surveys, GPR sections.

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