

The long arm of Himalayan orogeny - Tracing large prehistoric earthquakes along the northern Kyrygz Tien Shan and the Mongolian Hangay

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The project contributes to quantifying, and eventually mitigating, earthquake risk at selected sites along the northern Kyrgyz Tien Shan, and the Hangay mountains, Mongolia. These study areas connect along a line that roughly defines the northernmost deformation front of the Himalayan mountain-building process. The key objective is to elucidate the timing and magnitude of large to very large intraplate earthquakes together with some of their geomorphic consequences, which occurred before any systematic or instrumental records began. Such information is essential to establishing functional relationships between the frequency and magnitude of such rare and potentially destructive events as a fundamental requirement for probabilistic seismic hazard assessment. Eventually, it is intended comparing the characteristics of these palaeo-earthquakes, their longer-term tectonic significance, and the likely risk they pose to the growing urban population of these countries. To this end, modern monitoring techniques in the fields of tectonic geomorphology, palaeoseismology, and satellite-based remote sensing are combined. The expected outcomes of this research will include unprecedented data on the first-order hazard and potential consequences of large intraplate earthquakes, which have largely remained a black-box phenomenon in earthquake research not only in northern Kyrgyzstan and western-central Mongolia, but also in many other intra-continental settings throughout the world.

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