

NEOTECTONICS AND RELATED LANDSLIDES TRIGGERED BY EARTHQUAKES IN KYRGYZSTAN, TIAN-SHAN

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Landslides, rock falls and avalanches induced by earthquakes can have catastrophic consequences when they occur in populated and environmentally sensible areas. Kyrgyzstan, which lies in the middle of the Tian Shan mountains is particularly at risk for landslides triggered by earthquakes. This is a direct consequence of the youthfulness of the Tian Shan mountains and the high degree of tectonic and seismic activity, related to the collision and convergence of India into Eurasia. This work is done in the frame of a EC DG XII Copernicus program, aiming at evaluating the landslide risk associated with earthquakes in the Tian Shan region of Kyrgyzstan, and particularly in the northern Tian Shan region where metastable landslides are triggered by earthquakes. Investigations are conducted at both regional and local scales. Two fault zones along which known strong earthquakes generated landslides were studied in detail. The distribution of older landslides in the adjacent areas was also studied, to test their relation with paleo-earthquakes. For two landslides, detailed geophysical and geotechnical investigations were performed, with an evaluation of site effects on the ground accelerations and modeling of landslides with pseudo-static and dynamic methods. The data collected at the regional and local scales are synthesized to evaluate the landslide risk in the Tian Shan region.