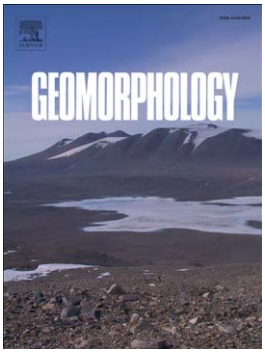

Rainfall intensity–duration threshold and erosion competence of debris flows in four areas affected by the 2008 Wenchuan earthquake

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Rainfall intensity–duration threshold and erosion competence of debris flows in four areas affected by the 2008 Wenchuan earthquake

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Abstract: Debris flows in the Wenchuan seismic region have caused human casualties and severe damage to local infrastructure. Consequently, the triggering rainfall threshold and erosion capability of post-quake debris flows has become an important research topic worldwide. In this study, we analyze five years of rainstorms and debris flow data from four typical earthquake-hit regions in order to examine the local rainfall intensity–duration (*I-D*) thresholds and debris supply conditions. It was found that debris flow events in the four seismic areas exhibited different *I-D* thresholds, related to local mean annual hourly precipitation and debris flow supply conditions. The *I-D* thresholds, normalized by mean annual