

The significance of landslide dams on large Chinese rivers

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Landslides forming natural dams across rivers pose considerable hazards, particularly the risk of catastrophic flooding after dam failure. In China, documentary records of large earthquakes and river blocking landslides have enabled inventories to be compiled. However, the record is far from complete as the remote and rugged terrain shelters evidence both of recent landslide dams and of ancient landslides which occurred before documentary records. Geospatial technologies enable the detection of anomalies in fluvial geomorphological systems which may indicate the past influence of river blocking landslides. Field evidence of sediment deposited behind landslide dams, enables the location of palaeo-landslides to be inferred. Recent discovery of an ancient landslide which dammed the main stem of the Yangtze River, China (crest height 200 m; lake volume $11.4 \pm 1.3 \text{ km}^3$) indicates that very large rivers have -and can be - impacted by persistent river-blocking landslides. As the magnitude of this landslide dam was much greater than examples in the historical record, it is argued that the potential for large earthquakes to generate enormous river-blocking landslides may be underappreciated as a mega-hazard.

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