Geomorphological and Geological Characteristics of Large Catastrophic Ancient Landslides along Minjiang River in Diexi, Western Sichuan, China

The two largest-scale landslides, Diexi landslide and Manaoding landslide occurred tens of thousands years ago, are located in Diexi area at upstream of Minjiang River where was also the most concentrated region of landslides induced by an earthquake of Magnitude 7.5 in 1933.



Fig. 1. Geologic and landslide map of Diexi area Through the field investigation in Diex area, the geologic and hazard map was made. A suite of dammed lacustrine sediments with the thickness of over 200m were discovered, which were inferred to be formed by the largest landslide along trunk of Minjiang, Diexi landslide.





And a dominant river knickpoint was located just above the upstream of lacustrine sediments precipitating about 20km of the river, which was considered to be caused by tectonic activity and knickpoint propagation.

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Fig. 6. Geologic structures and topography features of Diexi Landslide

Detailed field survey and topography analysis were conducted to explore the history and mechanism of the ancient landslides which were considerably related to lithology and geologic structures during the river-incision of upstream of Minjiang.

This study investigated a typical example of landslides controlled by river-incision along Minjiang River which could provide theoretic support for geohazard prediction and mitigation in Minjiang drainage basin.