

## A catastrophic rockslide-debris avalanche at Zhaotong, Yunnan, China: description and dynamic analysis

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At about 6:00 p.m., on 23rd September 1991, a catastrophic rockslide-debris avalanche (volume:18 million cubic meters) occurred in the Touzhai valley approximately 30 km northeast of Zhaotong city in northeast Yunnan, China. The displaced mass travelled over 3.65 km down the valley in only a few minutes and finally part of the debris mass plunged into the Pan River. The landslide filled the valley with basalt debris to an average depth of 40 m. This paper introduces the general site conditions and then discusses the relevant site conditions favorable to form the rock avalanche. Based on field observations and witness interviews, the sequence of the rock avalanche was analyzed, and a detailed characterization from initiation to final deposition was presented. Finally, we use the DAN model to re-construct the dynamics of the rock avalanche.

Keywords: Rockslide, Debris avalanche, Runout behavior, Dynamic modeling