



## **The interactions of channel and hillslope process of Shihmen reservoir watershed, northern Taiwan**

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Channel-hillslope process interactions provide important clues to make hazard zonation maps of landslide in watershed. To this end we investigated Shihmen reservoir watershed located in northern Taiwan, where a large number of mass movements have occurred, causing severe damage and yielding a huge amount of sediment. We found two major groups of convex slope breaks, a higher group and a lower group, which have been made during successive river incisions. The group of higher slope breaks bound a paleosurface, which is widely developed in higher elevations in the watershed; the formation and retreat of this group of slope breaks accompanied many large landslides, of which crowns are aligned along these slope breaks. The group of lower slope breaks can be traced several tens to a few hundred meters above trunk channels; many shallow landslides have occurred below these lower slope breaks. Some of the higher or lower slope breaks correspond to knickpoints on rivers, which have been curved in bedrock, suggesting the genetic relation between the slope breaks and the knickpoints. Knickpoints on first-order streams coincide with higher slope breaks in many locations. Knickpoint formation and its propagation are assumed to have occurred in response to base-level fall throughout the watershed, separating the actively adjusting downstream reaches from upstream portions of relict topography.