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Event-based landslide susceptibility analysis – an example from Central Western Taiwan

C.T. Lee(1), C. C. Huang(2), C. F. Lee(2), K. L. Pan(1), M. L. Lin(3), J. J. Dong(1)

(1) Institute of Applied Geology, National Central University, Taiwan (ct@gis.geo.ncu.edu.tw), (2) Central Geological Survey, Ministry of Economic Affairs, Taiwan, (3) Department of Civil Engineering, National Taiwan University, Taiwan

Landslide susceptibility analysis has long been applied to regional hill slope stability evaluation in the recent decades. It is required by regional planning, site selection, and policy making in hazard mitigation. However, an event-based landslide inventory and a delicate handling of the triggering factors are not commonly used in a previous landslide susceptibility analysis. This paper demonstrates the advantage of event-based landslide susceptibility analysis by using an event-based landslide inventory and emphasizing carefully handling of the triggering factor, like storm rainfall or earthquake shaking. An example from Central Western Taiwan in the Kuohsing area was selected for demonstration of the method. Results show that the event-based analysis of landslide susceptibility is successful after careful validation on a neighboring region and on a subsequent event. This model has two major advantages. Firstly, with carefully handling of the triggering factor, it can be used to predict future landslide at the study area and neighboring regions under storm or earthquake of similar magnitude. Secondary, it can be used to produce a good landslide susceptibility map of a region without a long-period landslide inventory.