



Evaluating the influence of gully erosion on landslide hazard analysis triggered by heavy rainfall

Tjuku Ruljigaljig (1), Ching-Jun Tsai (2), Wen-Fei Peng (2), and Teng-To Yu (2)

(1) National Pingtung University, Pingtung, Taiwan (tjuku@mail.nptu.edu.tw), (2) National Cheng Kung University, Tainan, Taiwan (yutt@mail.ncku.edu.tw)

During the rainstorm period such as typhoon or heavy rain, the development of gully will induce a large-scale landslide. The purpose of this study is to assess and quantify the existence and development of gully for the purpose of triggering landslides by analyzing the landslides hazard. Firstly, based on multi-scale DEM data, this study uses wavelet transform to construct an automatic algorithm. The 1-meter DEM is used to evaluate the location and type of gully, and to establish an evaluation model for predicting erosion development. In this study, routes in the Chai-Yi were studied to clarify the damage potential of roadways from local gully. The local of gully is regarded as a parameter to reduce the strength parameter. The distribution of factor of safe (F.S.) is compared with the landslide inventory map. The result of this research could be used to increase the prediction accuracy of landslide hazard analysis due to heavy rainfalls.