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Development and Application of Rainfall-induced Landslide Early Warning System

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Abstract

This study aims at the development of susceptibility model and warning threshold as well as establishing early warning system in order to prevent and reduce the losses caused by rainfall-induced shallow landslides. For the purpose of practical application, Taiwan is divided into nearly 185,000 slope units. The susceptibility and warning threshold of each slope unit were also analyzed as crucial information for disaster prevention. The geological characteristics, mechanism, and the occurrence time of landslides were recorded for more than 900 cases through field investigation and resident interviews in order to discuss the relationship between landslides and rainfall. Logistic regression analysis was performed to evaluate the landslide susceptibility, and an I_3-R_{24} rainfall threshold model was proposed for the early warning of landslides. The validations of recent landslide cases show that the model was suitable for regional shallow landslide warning. Finally, the web based *Rainfall-induced Landslide Early Warning System* had been built and connected to real-time radar rainfall data so that real-time landslide warning can be achieved.

Keywords：Landslide; Susceptibility Analysis; Rainfall Threshold

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