



Susceptibility Assessments of Heavy Rain Induced Landslides in Central Taiwan under Climate Variability

Keh-Jian Shou and Chin-Ming Ynag

National Chung-Hsing University, Dept. of Civil Engineering, Taichung, Taiwan, Province Of China
(kjshou@dragon.nchu.edu.tw)

Climate variability caused by global warming are among the most critical natural hazard issues of today. It is obvious that Taiwan has been affected by climate variability. The frequency of extreme rainfall events, where concentrated and intense rainfall generally causes landslides, has increased. Using the long term data collected from rainfall stations, this study employs rainfall frequency analysis. And the results were coupled with the atmospheric general circulation model (AGCM) to estimate the future rainfall trends, distributions, and intensities of the Chingshui River watershed in Central Taiwan.

The rainfall estimated by the rainfall frequency analysis and AGCM were used in the landslide susceptibility model to produce susceptibility maps for various rainfall scenarios due to the impact of climate variability. In this study, SPOT satellite images were used to identify the landslides in the Chingshui River watershed during 2001 Toraji, 2004 Mindulle, 2009 Morakot typhoons. After the calibration with those typhoon events, a logistic regression susceptibility model was applied to obtain the landslide susceptibility maps for those predictive scenarios. These results can provide suggestions for hazard remediation, mitigation, and prevention plans in the study area.