Geophysical Research Abstracts
Vol. 13, EGU2011-3991, 2011
EGU General Assembly 2011

Influences of soil thickness on shallow landslide prediction

Jui-Yi Ho (1), Kwan Tun Lee (1), Tung-Chiung Chang (2), and Yu-Hsun Liao (1)

(1) Department of River and Harbor Engineering, National Taiwan Ocean University, Keelung, Taiwan 202, ROC (e-Mail:juiyiho@gmail.com / Fax:+886-2-24634122), (2) State Key Laboratory of HydroScience and Engineering, Tsinghua University, Beijing, China.

Shallow landslides often occur during heavy rainstorms in mountainous terrains, resulting in casualties and property losses. The possible time and locations where landslides are likely to occur should thus be identified in advance in order to avoid or reduce the harm. When performing a slope-instability analysis, soil thickness is an important factor; however, soil thickness information from landslide-prone areas is rarely obtained. The objective of this study is to realize the influences of spatial distribution of soil thickness on shallow landslide prediction. In this study, the several spatial soil-thickness distributions are applied to perform a slope-instability analysis, and uniform-distributed soil thicknesses are also applied for comparison. Geomorphologic information and hydrological records from a landslide-prone area in southern Taiwan are collected. Results show that the spatial distribution of soil thickness, as proposed by Lee and Ho (2009), provides a reasonable estimation in order to avoid an over-prediction for landslide-prone areas or an under-prediction for stable areas. The analytical procedure used in this study is a simple method for assessing hill slope instability for shallow landslide prediction