

Deep seated landslides along the geological structure in Chishan River Watershed, southern Taiwan

LIAO, Chi-yueh^{1*} ; LIN, Ching-weei²

¹) Disaster Prevention Research Center National Cheng Kung University, ²Department of Earth Sciences National Cheng Kung University Tainan Taiwan

Landslide is the common nature hazard in Taiwan. The Typhoon Morakot in 2009 brought huge precipitation and induced severe hazards in south-central and eastern Taiwan. Except the landslides, debris flow and flooding hazards induced by Typhoon Morakot, the large scaled deep seated landslides deserve more attention because they may cause the destructive disaster.

The Chishan River watershed which covered 750 km² is selected as study area. The study area is mainly compose of metamorphic and sedimentary rocks. Within the study area, 313 sites greater than 10 ha with sliding topographic features of deep seated landslide such as crown main escarpment, down slope scarp ,and lateral cracks are recognized from LiDAR derived 1 m resolution DEM, and we noticed the distribution of these sites is close to the structure in our study area. In order to know the influence of structure in the development of deep seated landslides, landslide density are calculated. The landslide density decreases with increasing distance and there are 79% of. deep seated landslides developed along the structure with a 1km buffer zone. The Result indicates that deformation zone associated structure is crucial in the development of deep seated landslides in the study area.

Keywords: Chishan River watershed, deep seated landslides, geological structure