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土石流流動模擬技術於災害風險區劃定及災損評估應用之研究

林德貴[1]　徐森彥[2]　趙啟宏[3]　溫惠鈺[3]　許世孟[3]　顧承宇[4]　冀樹勇[5]

摘　　要　本研究採用二維有限差分法數值分析程式，針對花蓮地區之土石流潛勢溪流，進行災害風險區劃定及災損評估。首先，藉由參數敏感度分析，來探討各數值運算參數及材料特性參數之輸入值，對數值計算結果之影響。隨之，經由特定土石流事件之土石災害影響範圍之計算值與其觀測值之比對，即可決定一組適用於現地土石流流動模擬之參數組合並建立一套標準化之土石流流動數值模擬程序。採用上述數值模擬程序，可針對花蓮地區之土石流潛勢溪流，在不同災害規模設定條件下，模擬土石流流動之可能影響範圍及其流動深度分布。依據影響範圍及其流動深度之計算結果，即可進行土石流潛勢溪流影響範圍之劃定及災害風險之等級評估。透過定義土石流影響範圍內之災損元素，及二維有限差分法數值分析程式之災損計算模組之演算，即可獲得土石流影響範圍內之災損價值。本研究之分析成果，除了可提供土石流防災單位，在執行土石流相關政策及資源運用時之參考依據外，對於土石流潛勢溪流之災損評估方面亦提出一個較科學的量化計算方法，以供後續防災、救災與減災作業之參考。

關鍵詞：土石流潛勢溪流、影響範圍之劃定、災害風險、災損評估。

Applications of Simulation Technique on Hazard Zone Delineation and Damage Assessment of Debris Flow

Der-Guey Lin[1]　Sen-Yen Hsu[2]　Chi-Hung Chao[3]　Hui-Yu Wen[3]
Shih-Meng Hsu[3]　Cheng-Yu Ku[4]　Shu-Yeong Chi[5]

ABSTRACT　This study performed a series of hazard zone delineations in creeks with potential of debris flow and damage assessment in the Hua-Lien district using a two-dimensional (2-D) finite difference numerical tool. The input values of various numerical parameters and their influence on numerical calculation were investigated by sensitivity analyses. Subsequently, a set of parameters which are appropriate for the simulation of debris flow motion can be determined by comparing computed influences zone with those from observations. Using the aforementioned

〔1〕國立中興大學水土保持系副教授（通訊作者）
Associate professor, Department of Soil and Water Conservation, National Chung-Hsing University, Taichung 402, Taiwan. (Corresponding Author)
E-mail: dglin@nchu.dragon.edu.tw
〔2〕國立中興大學水土保持系博士研究生
Doctoral student, Department of Soil and Water Conservation, National Chung-Hsing University, Taichung 402, Taiwan.
〔3〕中興工程顧問社大地工程研究中心研究員
Research Engineer, Geotechnical Engineering Research Center, Sino-tech Engineering Consultants, Inc.
〔4〕國立台灣海洋大學河海工程學系助理教授
Assistant professor, Department of Harbor and River Engineering, National Taiwan Ocean University, Taiwan.
〔5〕中興工程顧問社大地工程研究中心經理
Manager, Geotechnical Engineering Research Center, Sino-tech Engineering Consultants, Inc.
E-mail: d9642001@mail.nchu.edu.tw