大尺度土壤邊坡模型沖蝕崩塌試驗之震動訊號分析

俞佳成[1] 馮正一[2*]

摘 要 本研究於惠蓀林場建置大尺度邊坡模型，利用上游人工堰塞壩破壞後所產生之洪水衝擊邊坡模型，導致沖蝕引起崩塌產生震動訊號。本研究量測洪水與邊坡模型崩塌所產生之震動訊號，並利用希伯特黃轉換(HHT)將振動訊號進行時頻分析，並探討振動訊號之特性。結果發現 HHT 可將洪水與崩塌之訊號分離，並可在洪水與崩塌訊號中判斷崩塌的時間點。

關鍵字：崩塌、震動訊號、HHT。

Seismic Signal Analyses for Erosion and Landslide Tests of the Large-Scale Model Soil Slopes

Chia-cheng Yu [1] Zheng-Yi Feng [2*]

ABSTRACT This study setup a large-scale model slopes in Huisun Forest Station. The flooding water from the upstream dam breach tests eroded the model slopes and produced seismic signals. The collapsed masses of the model slopes produced seismic signals as well.

We measured the seismic signals and applied Hilbert-Huang Transform (HHT) to perform time-frequency analysis for the seismic signals of flooding and collapsing. The characteristics of the seismic signals were discussed. We found that the seismic signals of flooding and collapsing can be separated and the timings of the collapsing masses of the model slopes can be distinguished.

Key Words: Landslide, seismic signal, HHT

〔1〕國立中興大學水土保持學系碩士生
Graduate student, Dept. of Soil and Water Conservation, National Chung Hsing University, Taichung 402, Taiwan
〔2〕國立中興大學水土保持學系教授（* 通訊作者 E-mail: tonyfeng@nchu.edu.tw）
Professor, Dept. of Soil and Water Conservation, National Chung Hsing University, Taichung 402, Taiwan