

921 震災崩場地特性分析及變遷監測之研究

林文賜^[1] 黃碧慧^[2] 林昭遠^[3] 周文杰^[4]

摘要 本研究以多期衛星影像資料監測九九峰地區 921 震災前後之崩場地現況，藉由遙測理論之植生指數及變遷分析，輔以 DEM 資料分析崩場地之地形特性，探討震災後崩場地景變遷及植生復育情形。研究結果顯示，在自然復育情況下，地震後二年內(桃芝颱風前)之崩場地面積及其地表植生已恢復為甚佳狀態，崩場地由震災初期之 829.50ha 減少為 187.06ha，約減少 77.45%，而崩塌區位之植生復育率亦已恢復達 58.93%；然受桃芝颱風災害影響崩場地擴大為 311.69ha，植生復育率減少為 28.53%；在植生復育區位分析，顯示坡面不穩定、較乾燥(脊線)或陡峭區位，為不利自然植生演替之區位。

關鍵詞：崩塌變遷分析、常態化差異植生指標、植生復育率。

Extracting Topographic Information and Monitoring Landscape Change for the Landslide Caused by the 921 Earthquake

Wen-Tzu Lin^[1] Pi-Hui Huang^[2] Chao-Yuan Lin^[3] Wen-Chieh Chou^[4]

ABSTRACT Massive landslides, caused by the catastrophic Chi-Chi earthquake, occurred at the Jou-Jou Mountain area of Wu-Chi basin. Multi-temporal satellite images and digital elevation model coupled with GIS were used to process the vegetation index analysis for identifying landslide sites and calculating vegetation recovery rate (VRR), and to extract topographic information of the areas. The result shows that within two years (before Toraji typhoon hit the land) the landslide sites have been covered with the healthy-growing plants under natural vegetation recovery condition. From September 27, 1999 through July 20, 2001, the area of landslide had decreased by 77.45%, from 829.50 ha to 187.06 ha and the VRR had risen by 58.93%; however, the area was enlarged up to 311.69 ha and the VRR reduced to 28.53% due to the stroke of Toraji typhoon in late July, 2001. In the analysis of vegetation recovery sites, it shows that unstable slopeland, drought ridgeline and steep sites are harmful to natural vegetation succession. The analyzed results can provide very useful information to the government for decision making and policy planning for the landslide area.

Key Words: landslide change analysis, Normalized Difference Vegetation Index, vegetation recovery rate.

-
- [1] 明道管理學院環境規劃暨設計研究所助理教授(通訊作者)
Assistant Professor, Graduate Institute of Environmental Planning and Design, Ming-Dao University, Changhua County 523, Taiwan, R.O.C. (Corresponding Author)
E-mail: aiken@mdu.edu.tw
- [2] 逢甲大學土木及水利工程研究所博士生
Doctoral Program, Graduate Institute of Civil and Hydraulic Engineering, Feng-Chia University, Taichung City 407, Taiwan, R.O.C.
- [3] 國立中興大學水土保持學系教授
Professor, Department of Soil and Water Conservation, National Chung-Hsing University, Taichung 402, Taiwan, R.O.C.
- [4] 中華大學土木工程學系講師
Lecturer, Department of Civil Engineering, Chung-Hua University, Hsinchu 300, Taiwan, R.O.C.