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模糊理論應用於土石流危險度分析之研究

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摘　　要　台灣山區土石流災害頻傳，爲減少損失必須進行危險度分析，再依評估結果進行防災措施。土石流之發生因子皆有其不確定性。模糊理論對處理「不精確」的問題特別具有效力，因此選取 12 項因子以多級模糊綜合評判方法，再以地震加權係數，對地震影響進行衡量判斷其危險等級。最後以地震前銅門村、陳有蘭溪流域、地利及地震後郡坑溪、豐山村案例，進行比較。評價結果之危險等級，無論地震前地震後或有無致災均與實況相符，可作爲預警之參考。

關鍵詞：土石流、模糊理論、地震。

Application of Fuzzy Theory to the Analysis of the Risky Grade of Debris Flow

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ABSTRACT　Debris-Flow occurs frequently in Taiwan. To avoid or reduce the damage cased by debris-flow, It is necessary to carry out an analysis of the risk grade, then with the new decision practice, the debris-flow hazard can be prevented.

Factors of debris-flow have uncertain particularity. Fuzzy theory is powerful in solving uncertain problems. This study adopt the Multistage Fuzzy Synthetic decision method with 12 factors and uses an earthquake weighting coefficient to measure the effect of earthquakes to estimate the risk grade. Finally, the case of debris-flow will be applied to Toun-Me village and Chen-Yeou-Lan watershed prior to the earthquake, and to Jun-Keng ravine and Fongshan after the earthquake as examples for the purpose of comparison. The results showed that degree of danger corresponds to the real situation, regardless of whether it happened before or after the earthquake or not. Thus, it could be taken as a reference for warning of potentially dangerous debris flow.

Key Words:　debris flow, fuzzy theory, earthquakes.

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