

## 地形指標與集水區地文因子關係之研究

林昭遠<sup>[1]</sup> 黃凱君<sup>[2]</sup> 莊智瑋<sup>[3]</sup> 林家榮<sup>[3]</sup>

**摘 要** 台灣位於歐亞板塊和菲律賓板塊交界帶，造山運動強烈，地表侵蝕作用常伴隨著相對的地體抬升補充回來，經長時距的地形演育，地表逐漸趨向於一平衡階段。鑒於板塊構造運動緩慢，僅能藉由現階段地貌之特徵，來反映長期的地形演育過程，故利用量化地形指標，以解釋構造地形在演育上意義。本研究以濁水河流域為對象，採水力侵蝕模型為基礎，進行地形分析，建立基岩河道模型，量化各集水區之均衡地形指標，並利用多變量分析，分析地形指標與集水區地文因子之關係。結果顯示，陡峭的地形往往發生在抬升相對快速的地區，集水區形狀因子對凹度指標有顯著之影響，集水區之地文因子可作為凹度指標分類之依據。

**關鍵詞**：地形演育、地形指標、水力侵蝕模型、判別分析。

## Relationship between Geomorphic Indices and Topographic Information of A Watershed

Chao-Yuan Lin<sup>[1]</sup> Kai-Jyun Huang<sup>[2]</sup> Chin-Wei Chuang<sup>[3]</sup> Chia-Rung Lin<sup>[3]</sup>

**ABSTRACT** Taiwan is located on the border of the Eurasia tectonic plate and Philippines tectonic plate, and represents a governing force in the tectonic evolution of orogenic systems. Mass redistribution by erosion is caused by the rock uplift. Landscape becomes steady state through a long evolution of the geomorphology. Due to the plate moving very slowly, we use the landscape characteristics to represent the processes of the landform evolution, To quantify the tectonic indices to explain the implication of the topographic evolution. To quantify the geomorphic indices, geomorphic analysis has been applied to establish the bedrock fluvial channel based on the hydraulic scouring model, and analyze the relationship between geomorphic indices and topographic information by multivariate analysis. The results show steeper topography is frequently associated with regions of rapid rock uplift. Form factor is the major parameter which adapts to evaluate the concavity index in this study. Discriminate analysis shows 100% of the original groups can be correctly classified.

**Key Words:** topographic evolution, geomorphic indices, hydraulic scouring model, discriminate analysis.

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[1] 國立中興大學水土保持學系教授（通訊作者）

Professor, Department of Soil and Water Conservation, National Chung Hsing University, Taichung 402, Taiwan, R.O.C.  
(Corresponding Author)

E-mail: cylin@water.nchu.edu.tw

[2] 國立中興大學水土保持學系碩士班研究生

Doctoral graduate student, Department of Soil and Water Conservation, National Chung Hsing University, Taichung 402, Taiwan, R.O.C.

[3] 國立中興大學水土保持學系博士班研究生

Doctoral graduate student, Department of Soil and Water Conservation, National Chung Hsing University, Taichung 402, Taiwan, R.O.C.