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台北地區降雨沖蝕指數推估公式之建立及歷年變化趨勢分析

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摘　　要　通用土壤流失公式（USLE）爲現今最常被應用於估算土壤沖蝕量的模式之一。公式中降雨沖蝕指數，在台灣地區常採用黃俊德（1979）所繪製之台灣年降雨沖蝕指數等值圖。然而，隨著氣候變遷之影響，此等值圖是否依然能代表現今亦或未來之變化，實存在相當之不確定性。緣此，本研究蒐集中央氣象局台北站之歷年雨量資料（1961~2007 年），並利用月雨量、月降雨強度與月降雨沖蝕指數間之關係，以迴歸分析法建立台北地區降雨沖蝕指數推估公式。結果顯示，此一模式確能較爲準確的模擬降雨沖蝕指數之變化情形，並能提供較爲可靠的預測能力。其後利用此一公式計算缺乏雨量資料年份之年降雨沖蝕指數，進行歷年年降雨沖蝕指數之變化趨勢分析。結果顯示，近十年來台北地區的年降雨沖蝕指數，係呈現大幅成長的趨勢，且各階段年降雨沖蝕指數之變異性亦顯著增加。綜上觀之，台北地區之年降雨沖蝕指數，可能已有趨向極端化之現象產生。

關鍵詞：土壤沖蝕，通用土壤流失公式，降雨沖蝕指數，氣候變遷，月降雨量，月降雨強度。

Establishment of the assessment model of the rainfall erosivity and their annual variation trend in Taipei

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ABSTRACT　The Universal Soil Loss Equation (abbreviated as USLE) is presently one of the most widely used models to evaluate soil erosion. The iso-erodent map of annual rainfall erosivity index in Taiwan proposed by Huang(1979) has been used for years to assess the rainfall erosivity factor(R) in USLE. Along with the impact by climate change, it is not certain that the map can reflect the variations at present and in the future. Therefore, in this study, the rainfall data (from 1961 to 2007) of the Taipei area were collected from the Taipei station of the Central Weather Bureau. Aside from this, the relationships among monthly rainfall amount, monthly rainfall intensity and monthly rainfall erosivity were analyzed to establish the equation for evaluating the rainfall erosivity in Taipei. The results showed that this model could simulate the variation of rainfall erosivity more accurately and provide a better prediction. Then the proposed equation was used to calculate the annual rainfall erosivity of the years in which the rainfall data were missing, and to analyze the variation trends of annual rainfall erosivity. From the results, it showed that in the

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past ten years both the annual rainfall erosivity and their coefficient of variation in each period in Taipei increased greatly. It might be concluded that the annual rainfall erosivity in Taipei tended to have extreme values.

Key Words: soil erosion, universal soil loss equation, rainfall erosivity, climate change, monthly rainfall amount, monthly rainfall intensity.