氣候變遷下台灣降雨沖蝕指數變化評估

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摘　　要　降雨是導致土壤沖蝕的主因之一，而通用土壤流失公式(USLE)為目前世界上應用最廣泛的土壤流失估算模式之一，亦是我國現行採用的土壤沖蝕估算公式。公式中降雨沖蝕指數在台灣已有前人研究成果可供參考，唯近年來氣候變遷趨勢日益嚴重，其導致的降雨變化將直接影響土壤沖蝕。

現今氣候變遷之模擬仍以長期之變化趨勢為主，因此本研究以國際政府間氣候變遷觀察小組(IPCC)公告氣候變遷情境 A2、B2 下的大氣環流模式(GCMs)模擬之未來降雨趨勢，配合雨量站之基期降雨量資料與土壤沖蝕指數間關係，進而探討未來短、中、長期之降雨沖蝕指數 R 之變化；大部分模式模擬未來之年降雨沖蝕指數較基期高，大致依未來短、中、長期而升高趨勢越明顯，且南部之降雨沖蝕指數增加幅度大於中北部，而各模式間的變異隨著時間（未來短期、中期、長期）變異也越來越大。本研究並以地理統計之克利金法(Kiging)推估台灣地區降雨沖蝕指數之空間變異並繪製成圖，以供未來擬定氣候變遷影響下土壤流失治理策略之應用。...

關鍵詞：氣候變遷、土壤沖蝕、通用土壤流失公式。

Re-evaluation of Rainfall Erosivity Factor under Climate Change in Taiwan

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ABSTRACT　Rainfall is the main factor resulting in soil erosion. The Universal Soil Loss Equation (USLE) is the most widely used soil erosion prediction model in the world. The rainfall erosivity index is one of the most important factors which directly reacts the degree of soil erosion. In this research, rainfall erosivity index (R-index) was re-evaluated because of climate change. Climate change scenarios released by Intergovernmental Panel on Climate Change (IPCC) were used to estimate the probability erosivity index in the future. Rainfall erosivity index has a strong relationship to the rainfall amount. Due to the limitation of General Circulation Models (GCMs) simulation results, rainfall erosivity index was re-evaluated based on GCMs' monthly rainfall. Finally, the rainfall erosivity indices under climate change scenarios (SRES-A2, B2) were calculated. And the monthly rainfall erosivity index map of Taiwan was finished by Kriging estimation, We discussed and compared the variation of rainfall erosivity index which was obtained by various GCMs (such as CGCM2, CCCSR/NIES, ECHAM4, HadCM3 and etc.) under two climate scenarios in order to evaluate the climate change impact on soil erosion.

Key Words: Climate Change, soil erosion, USLE.

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