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

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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 monthly 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.