



Temporal and spatial variations of rainfall erosivity in Southern Taiwan

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Soil erosion models are essential in developing effective soil and water resource conservation strategies. Soil erosion is generally evaluated using the Universal Soil Loss Equation (USLE) with an appropriate regional scale description. Among factors in the USLE model, the rainfall erosivity index (R) provides one of the clearest indications of the effects of climate change. Accurate estimation of rainfall erosivity requires continuous rainfall data; however, such data rarely demonstrate good spatial and temporal coverage. The data set consisted of 9240 storm events for the period 1993 to 2011, monitored by 27 rainfall stations of the Central Weather Bureau (CWB) in southern Taiwan, was used to analyze the temporal-spatial variations of rainfall erosivity. The spatial distribution map was plotted based on rainfall erosivity by the Kriging interpolation method. Results indicated that rainfall erosivity is mainly concentrated in rainy season from June to November typically contributed 90% of the yearly R factor. The temporal variations of monthly rainfall erosivity during June to November and annual rainfall erosivity have increasing trend from 1993 to 2011. There is an increasing trend from southwest to northeast in spatial distribution of rainfall erosivity in southern Taiwan. The results further indicated that there is a higher relationship between elevation and rainfall erosivity. The method developed in this study may also be useful for sediment disasters on Climate Change.