

降雨 - 逕流模式於水稻梯田之適用性分析

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摘 要 水稻梯田具有極佳的水土保育功能，其貯留效果不但可有效降低洪峰，亦可延遲洪峰到達的時刻。對於水稻梯田之功能，本研究嘗試予以量化表示。為提升模擬模式的精度，選定新竹縣新埔鄉大茅埔段之水稻梯田為模擬區，並設置自記式水位計與雨量計，蒐集流量、雨量實測數據，分別規劃數個降雨－逕流模式應用於水稻梯田區，包括運動波模式、線性水庫模式、水筒模式及水田水筒模式，進行實際之降雨－逕流模擬比對，並評估其適用性，優選出最適用於水稻梯田之降雨－逕流模式。由本區中篩選出的二場降雨事件之模擬結果，以統計及水文學上常用的五種評鑑指標加以評估之後，發現在四種降雨－逕流模式中，水筒模式及水田水筒模式之整體模擬表現較佳，是較適用於水稻梯田之降雨－逕流模式。

關鍵詞：水稻梯田，水筒模式，降雨－逕流模擬。

Study on Applicability of Rainfall-runoff Models to Terraced Paddy Field Simulation

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ABSTRACT Terraced paddy field are considered to be the best way to conserve our water and soil. The water storage effect of terraced paddy fields not only reduces but also delays the flood peak effectively. The terraced paddy fields in Hsuing-Pu Hsiuing-Chu were selected to be our subjects. In this experimental field we arranged water-stage automatic recorders and automatic rain gauges at the entrance and the outlet of the flow to gather the data of rainfall in this region for rainfall-runoff simulation. There are four rainfall-runoff models used --kinematic wave model, linear reservoir model, tank model and paddy tank model-- to perform the rainfall-runoff simulation with the same gathering data, then compare their results and determine their applicability. Two natural rainfall events occurred in the test area to be practical example to examine the four modes and five evaluation indexes were applied to calculate the results of the simulation. The findings showed that tank model and paddy tank model have better applicability than others for rainfall-runoff simulation.

Key Words: terraced paddy field, tank model, rainfall-runoff simulation.

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