

عنوان مقاله:

Establishment of a Stochastic Model for Sustainable Economic Flood Management in Yewa Sub-Basin, Southwest Nigeria

محل انتشار:

ژورنال مهندسی عمران، دوره 2، شماره 12 (سال: 1395)

تعداد صفحات اصل مقاله: 10

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خلاصه مقاله:

Of all natural disasters, floods have been considered to have the greatest potential damage. The magnitude of economic damages and number of people affected by flooding have recently increased globally due to climate change. This study was based on the establishment of a stochastic model for reducing economic floods risk in Yewa sub-basin, by fitting maximum annual instantaneous discharge into four probability distributions. Daily discharge of River Yewa gauged at Ijaka-Oke was used to establish a rating curve for the sub-basin, while return periods of instantaneous peak floods were computed using the Hazen plotting position. Flood magnitudes were found to increase with return periods based on Hazen plotting position. In order to ascertain the most suitable probability distribution for predicting design floods, the performance evaluation of the models using root mean square error was employed. In addition, the four probability models were subjected to goodness of fit test based on Anderson-Darling (A2) and Kolmogorov-Smirnov (KS). As a result of the diagnostics test the Weibul probability distribution was confirmed to fit well with the empirical data of the study area. The stochastic model generated from the Weibul probability distribution, could be used to enhance sustainable development by reducing economic flood damages in the sub-basin

کلمات کلیدی:

Sustainable; Development; Economic Flood; Stochastic Model

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