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Application of temporal disaggregation model for Tungabhadra river in stream flow generation

MALLIKARJUNA AND **A.A. ATRE**

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See end of the Paper for authors' affiliation

Correspondence to :

MALLIKARJUNA
Department of Soil and Water Conservation Engineering, Dr. A.S. College of Agricultural Engineering, Mahatma Phule Krishi Vidyapeeth, Rahuri, AHMEDNAGAR (M.S.) INDIA
Email : dandu431@gmail.com

ABSTRACT : The present study has been carried out to elaborate a model for generating the synthetic sequences of 10-daily stream flows for Tungabhadra river at Munirabad dam site. The parameters of autoregressive models intent by method of moment and maximum likelihood method in generating annual stream flow data. The goodness of fit of autoregressive model was tested by Akaike Information Criterion. The autoregressive model of order one was found best for generating annual stream flow data. Lane's condensed disaggregation model was selected to represents the 10-daily stream flows. Since, the disaggregation model for generating synthetic stream flows requires previously generated annual stream flow series, the annual stream flow series was modeled by using autoregressive model of order one. The annual stream flow discharges and 10-daily stream flow discharges of Tungabhadra river at Munirabad dam site for 33 years (1977-2009) were used for elaborating mathematical model. The comparison of statistical characteristics of historical and generated stream flows suggest that temporal disaggregation model can be used to generate 10-daily stream flow data which conserves the mean, skewness and kurtosis for some 10-daily stream flow along with the mean and kurtosis of aggregative annual stream flow.

KEY WORDS : Akanke information criterion, Temporal disaggregation model, Generation

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