DEVELOPMENT OF RELATIONSHIPS BETWEEN RUNOFF PARAMETERS AND CATCHMENT CHARACTERISTICS

BY

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A B S T R A C T

Regression analysis provides a powerful tool for analysing hydrological data for different purposes. Some of these purposes are flood prediction, hydrological planning and reservoir designing. The present study deals with modeling of maximum mean daily discharge and lag time as runoff parameters in terms of climatological and catchment characteristics such as rainfall, area, length of main river and average slope of catchments.

Fiftheen catchments were selected with nearly the same climatological conditions. An approach called "index" was used to classify the observations in three parts to achieve better results. Best fit models were selected on the bases of highest coefficient of determination and least residual. Different tests were applied to check the accuracy of the models. Graphical tests were applied for (i) graphical comparison of observed and calculated values, (ii) confindence interval hypothesis testing, and (iii) double mass curve. Statistical tests were applied for (i) comparison of means and standard deviations of observed and calculated values, (ii) to check the tendency of residual mean to zero and (iii) comparison of standard deviation and standard error of residuals.

Maximum mean daily discharge models show better results as compared to lag time models. These models may be used by designers, for the purpose of flood prediction and reservior designing.