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
of

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Estimation of Instantaneous Peak Flows in Seyhan River Basin Using Regional
Regression Procedures

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Abstract: Multivariate procedures for estimating instantaneous flood flows for various return periods in Seyhan river basin are presented in the study. Procedures aim at developing regression equations usable for the basin using annual peak instantaneous flows, climatic and morphometric characteristics. It was determined that best subset analysis gave the highest determination coefficients ($91.0\% < R^2 < 95.0\%$) than stepwise analysis ($84.23\% < R^2 < 85.13\%$), principal component analysis and factor analysis ($69.2\% < R^2 < 71.0\%$). Climatic characteristic, basin area, and stream frequency are the most important characteristics in developed equations for the best subset analysis. In addition, the flood flow estimation capability of the best subset equations for the Seyhan river basin is demonstrated to be sufficient using statistical criterion of prediction error. Flood estimates for a given return period can be done using the best subset equations of only three characteristics at an ungauged site in the Seyhan river basin without measuring any flow data.

Key Words: Instantaneous Flows, Flood, Climatic and Morphometric Characteristics, Best Subset Analysis, Multivariate Analyses, Regional Regression Equations

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