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Streamflow Forecasting Using Temporal And Spatial Disaggregation Method

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Water resources planning and management strictly depends on the amount of river discharge. The lack of streamflow data is an obstacle to suitable water resources management. Among several stochastic models, disaggregation has been used to forecast time series. Through this method, hydrological variables can be disaggregated into smaller scales, either in temporal or spatial. In this study the annual series of streamflow data have been disaggregated into semiannual and monthly series using basic and extended models. On the other hand, the annual discharge of main river has been divided into the discharge of subbranches. The comparison between these models has been conducted with R.M.S.E criteria. In the other part of this research, firstly the annual discharge has been forecasted using Autoregressive Integrated Moving Average (ARIMA) model and then monthly data have been resulted by temporal disaggregation. This method has been applied for Ouromieh river basin in the North-West of Iran. The results showed that the disaggregation models have good agreement with normal streamflow series. The simulated series that have been obtained from extended model have high accuracy with a minimum R.M.S.E. The statistical parameters were also preserved between observed and forecasted streamflow data.

***Keywords*:** Forecasting streamflow, Disaggregation method, Temporal, Spatial, ARIMA, Iran.