



Application to Evaluation of Hydrological Time Series Forecasting for Long-Term Runoff Simulation

Sun-Kwon Yoon (1), Young-II Moon (2), Tae-Suk Oh (3), Jang-Won Moon (4), and Seong-Sil Kim (5)

(1) Graduate Student, Dept. of Civil Engineering, The University of Seoul, Seoul, Korea

(skyoon@uos.ac.kr/+82-2-2210-2895), (2) Professor, Dept. of Civil Engineering, The University of Seoul, Seoul, Korea

(ymoon@uos.ac.kr/+82-2-2210-5208), (3) Postdoctoral Research, Dept. of Civil Engineering, The University of Seoul, Seoul, Korea (taesuk79@gmail.com), (4) Graduate Student, Dept. of Civil Engineering, The University of Seoul, Seoul, Korea

(mromyo@uos.ac.kr), (5) Graduate Student, Dept. of Civil Engineering, The University of Seoul, Seoul, Korea

(sierie@uos.ac.kr)

Hydrological system forecasting, which is the short term runoff historical data during the limited period in dam site, is a conditional precedent of hydrological persistence by stochastic analysis. We have forecasted the monthly hydrological system from Andong dam basin data that is the rainfall, evaporation, and runoff, using the seasonal ARIMA (autoregressive integrated moving average) model. Also we have conducted long term runoff simulations through the forecasted results of TANK model and ARIMA+TANK model. It has been taking for three steps, which is model identification, model estimation and model diagnostic checking, to modeling for time series data to processing typical Box and Jenkins method. Therefore, time series data analysis carry out the model distinguished from ACF (autocorrelation function), PACF (partial autocorrelation function), AIC (akaike's bayesian criterion) and SBC (schwartz's bayesian criterion). Model diagnostic checking has been performed to portmanteau test, residual test and model identification by ML (maximum likelihood) method. The results of analysis have been concurred to the observation data, and it has been considered for application to possibility on the stochastic model for dam inflow forecasting. Thus, the method presented in this study suggests a help to water resource mid- and long-term strategy establishment to application for runoff simulations through the forecasting variables of hydrological time series on the relatively short holding runoff data in an object basins.