

## Estimation on the Accuracy of Flood Runoff Forecasting according to the Temporal and Spatial Variation of Rainfall Data

Yonggwang Choe, Myongbong Jo, Byongyon Kim, and Hyonmin Rim

KimIlSung University of Democratic People's Republic of Korea, Ryongnam-Dong, Taesong District, Pyongyang, DPRK

It is important to create a flood forecasting model and use this model to improve the accuracy of forecasts for the protection and management of river systems, including dams. This study estimated the effect of temporal and spatial changes in the precipitation data on the peak prediction of the flow using the motion wave model in the 'T' River Basin. We conducted the experiment using the flood process data for 3 days during the rainy season to evaluate the accuracy of the flood forecasting process according to the temporal and spatial changes of the precipitation information. First, we used the rainfall data measured at intervals of 1 h and 3 h at 38 regular observation stations in the study area to evaluate the accuracy of the forecasting for the flood forecasting. The accuracy of the forecasting process depends on the temporal and spatial variation of the precipitation information. When the error of the flood forecasting value of the precipitation data observed at intervals of 1 h was compared with the precipitation data observed at intervals of 3 h, the average was reduced to 4.5%; when the number of observation points is 38, and the average is 9.3%. At this time, the difference in appearance time of the floors decreased to 0.6 times on average. When the number of precipitation observation points was increased to 63 in comparison with the number of observation points in 38 cases, the error of the flood forecasting value was decreased by 5.7% at 1h interval and decreased by 0.9% at 3h interval. When the number of precipitation observation points was increased to 63 in comparison with the number of observation points in 38 cases, the error of the flood forecasting value was decreased by 5.7% at 1h interval and decreased by 0.9% at 3h interval. At this time, the difference in appearance time of the floors was decreased 0.8 - 0.9 times on average. The temporal change of the precipitation information on the accuracy of such a large logistics forecast becomes more apparent as the number of observation points increases, and the spatial variation of the precipitation information becomes clearer as the precipitation observation time interval becomes shorter. The results of the study show that time variability has more impact on the accuracy of flood runoff prediction than spatial variation.