



An Integrated Urban Flood Analysis System in South Korea

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Due to climate change and the rapid growth of urbanization, the frequency of concentrated heavy rainfall has caused urban floods. As a result, we studied climate change in Korea and developed an integrated flood analysis system that systematized technology to quantify flood risk and flood forecasting in urban areas. This system supports synthetic decision-making through real-time monitoring and prediction on flash rain or short-term rainfall by using radar and satellite information. As part of the measures to deal with the increase of inland flood damage, we have found it necessary to build a systematic city flood prevention system that systematizes technology to quantify flood risk as well as flood forecast, taking into consideration both inland and river water. This combined inland-river flood analysis system conducts prediction on flash rain or short-term rainfall by using radar and satellite information and performs prompt and accurate prediction on the inland flooded area. In addition, flood forecasts should be accurate and immediate. Accurate flood forecasts signify that the prediction of the watch, warning time and water level is precise. Immediate flood forecasts represent the forecasts lead time which is the time needed to evacuate. Therefore, in this study, in order to apply rainfall-runoff method to medium and small urban stream for flood forecasts, short-term rainfall forecasting using radar is applied to improve immediacy. Finally, it supports synthetic decision-making for prevention of flood disaster through real-time monitoring.

Keywords: Urban Flood, Integrated flood analysis system, Rainfall forecasting, Korea

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