

Resent Technologies on Flood Runoff Prediction

Akira MANO

Tohoku University

We have developed a distributed runoff model with almost calibration free feature by internalizing the distributed parameters. This model obtains high applicability to various river catchments ranging 10^6 to 10^4 square kilometers and shows high performance especially for poorly gauged catchments. This model is applied to the Ciliwung River running through the Indonesian capital, Jakarta. We analyzed the effect of rapid urbanization on the runoff and shows significant increase of peak discharge by the urbanization.

Then we introduce a flood forecast technology. Numerical weather forecasts in global domain are now operated in EU, US and Japan. The forecast outputs distributed rainfall with the lead time of ten hours to few days. By inputting the forecasted rainfall to the runoff model, we have developed accurate food prediction with the same lead time. This combination, calibration free runoff model and global numerical weather forecast, has advantage on the broad applicability to various countries. We have applied this system to the Central Vietnam to achieve useful flood prediction.