

## **A Study on the Improvement of a Distributed Rainfall-runoff Model Using High Resolution Ancillary Data**

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In this study, we tried to improve a distributed Rainfall-Runoff Model (RRM) using high resolution topographical data. Compared with lumped models, distributed RRM have advantage that they are capable to address the spatial variability of rainfall and catchment heterogeneity using Geophysical Information System (GIS) data. To guarantee the model accuracy, usually high resolution simulation is necessary since channel flow behavior is modeled in cell based process. For operational application of a distributed RRM to flood forecast, however, not only model accuracy but also simulation time is very significant element. We modeled the behavior of channel flow in a coarse resolution sub-pixel to reduce the simulation time and preserve the model accuracy. The developed sub-pixel flow module improves the performance of a distributed RRM in coarse resolution simulation. The developed model is useful in application of a distributed RRM for real-time flood forecast.