A MODEL FOR FLOOD INUNDATION ANALYSIS IN URBAN AREA: VERIFICATION AND APPLICATION

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1. Introduction
The mathematical model developed by Kawaike K. et al. 2000 is applied to analyze flood inundation in urban areas. The model is first verified by using experiment data provided by Ujigawa Laboratory Group, DPRI, Kyoto University. Additional verification is carried out by using some rough measured data of flood inundation caused by heavy rainfall in Hanoi city of Vietnam in 2001. The model is then applied to predict the flood inundation processes when assumed exceptionally heavy rainfall or river dike break happens in Hanoi.

2. Model verification and application outlines
(1) The 2-D unsteady flood flow is modeled by the system of shallow water equations. The finite difference technique based on unstructured meshes is used. The finite difference equations are fully explicit.
(2) The experiment model is shown in Fig. 1. The computation mesh system for the model verification is shown in Fig. 2.

3. Conclusion remarks
(1) The simulation results are acceptable.
(2) The model is very effective in treating complicated topography of urban areas.