Development of Estimation Method of Inner-Outer Water Integrated Inundation (Research period: FY2017 to FY2018)

Climate Change Adaptation Research Group
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1. Introduction

There are frequent occurrence of Heavy rains and flood disasters that we have never experienced. In order to implement disaster reduction measures in case of heavy rain / flood exceeding the scale of flood control facility improvement in cooperation with various local entities, it would be effective to share flood risk information (e.g., inundation estimation map) in communities and study / promote countermeasures. However, flood disaster risk information has been conventionally prepared according to each river and sewerage department and has been difficult to use for local residents, etc.
For this reason, with the aim to provide easy-to-see risk information with excellent listing performance, we have developed an inundation estimation method with integration of floods from rivers and sewerage applied it to a model area on a trial basis, the results of which are introduced as follows.

2. Example of the past inundation estimation in model district

Figs. 1 and 2 show examples of inundation estimation conducted by river / sewerage departments in the model district.

3. Results of estimation of river-sewerage integrated inundation

Fig. 3 provides an example of the map for integrated estimation of inundation caused by river and sewerage floods. For the scale of rainfall, probability estimation was conducted based on the rainfall duration adopted in each past inundation estimation (river; 2 days, sewerage: 1 hour). Note that selection of maximum / median values according to the purpose of use is expected. In addition, storm surge was excluded from integration since evaluation of recurrence interval was difficult.

4. Conclusion

We intend to continue trial application to areas with different flood characteristics and study utilization method in cooperation with urban departments.

☞**See the following for details.**
Technical Note of NILIM to be published

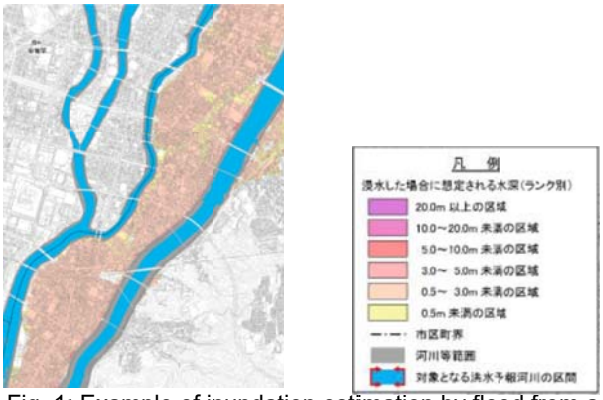

Fig. 1: Example of inundation estimation by flood from a river in the model area
(2-day rainfall: about 400 mm: Probability scale: 1/200)

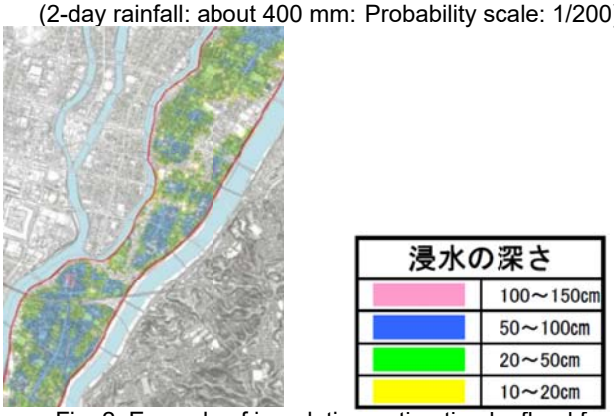

Fig. 2: Example of inundation estimation by flood from sewerage in the model area
(Hourly rainfall: about 80 mm: Famous flood disaster rainfall)

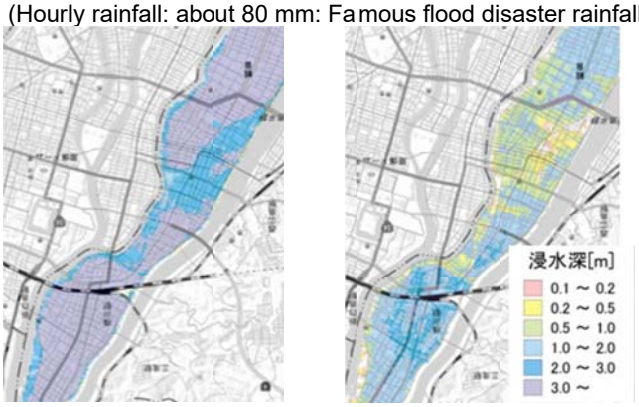

Fig. 3: Example of estimation of river- sewerage integrated inundation
(Probability scale: 1/75, Left: Maximum value, Right: Median value)