

Forecast Inundation and Strengthen Urban Flood Control Measures

(Study period: FY2014 to FY2018)

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1. Introduction

Since sudden localized torrential downpours (so-called "guerrilla downpours") have been increasing in recent years, it is required to develop measures for disaster prevention / mitigation, such as more speedy and accurate flood control activities and evacuation guidance, etc.

This study aims to support flood control activity, evacuation guidance, etc. by distributing the results of inundation forecast calculation using real-time data and thereby strengthen inundation countermeasures.

2. Establishment of an inundation forecast information distribution system

We have created an inundation forecast program that enables integrated control of inland and river floods by integrating the models of river and sewerage hydraulic analysis and flood analysis covering the basins of Kanda River and Shakujii River, where urbanization is proceeding, and installed the program in the system. The inundation forecast system has the high-speed performance enough to complete the process within 10 minutes from 1-hour forecast calculation of river level and inundation to information distribution using radar rainfall information observed by XRAIN, etc. every 10 minutes and 1-hour forecast of rainfall information. For rainfall prediction information, High-resolution Precipitation Nowcast has been used, and rainfall prediction information using the phased array radar, etc. to be developed within SIP (*) is to be input in the future. The results of computation are available on the Internet (See Figure 1).

3. Consideration for acceleration of inundation countermeasures using forecast information

We conducted hearings from the personnel of local governments in charge of disaster prevention / flood

control and facility administrators of subway, intensive care home for the elderly, elementary school, etc., who are expected to be the entity of inundation countermeasures about the present inundation countermeasures, and discussed with them acceleration of inundation countermeasures using forecast information (See Fig. 2), issues arising in the course of achievement, etc.

Main points of their opinions are as follows.

- Useful for inundation countermeasures even with the lead time of about 1 hour.
- Longer lead time should be secured rather than subdividing the forecast of areas vulnerable to inundation.
- Need an alarm that warns danger coming near since it is impossible to monitor the system all the time.
- Since implementation of evacuation etc. has a great effect, high reliability is required for information on forecast.

In reference to these opinions, we continue to improve the systems, such as addition of alert function, and to inspect the accuracy of inspection for inundation, etc. and each entity is required to deepen discussion for more specific inundation countermeasures.

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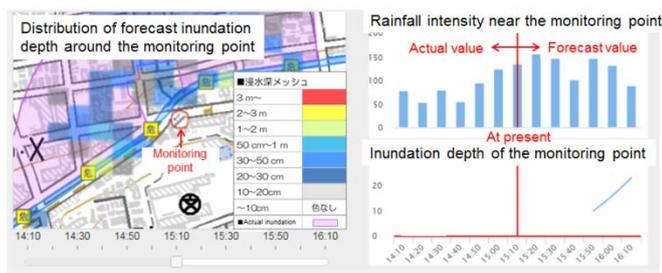


Figure 1: Example of indication of inundation forecast (monitoring point screen)

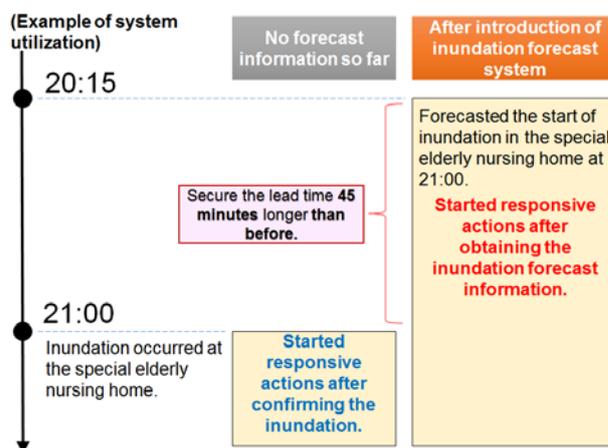


Figure 2: Timeline of inundation countermeasures using inundation forecast