

Joint Research on a Real Time Urban Drainage Management Systems

Year of research

2009~2010

Implementation of anti-inundation measures

(Purpose)

The Real Time Urban Drainage Management Systems is composed of data collection and management system, real-time runoff analysis system and information delivery system and its purpose are flood control measures, to CSO control, and energy reduction.

This year's purpose are the construction of this systems, to confirm the stability operation of this systems in the research field, the development of distributed contents, the evaluation of introduction effects and to be compiled in the technical data of Real Time Urban Drainage Management Systems.

(Results)

(1) Construction of systems and confirmation of the stability operation

It was confirmed that reliable real-time analysis and data distribution can be done with data from Japanese rainfall radar, rainfall, water level and flow meters.

(2) Distributed contents

The distributed contents are overall monitoring, pump operation at stormwater pumping station, operation of drainage pumps at stormwater storage pipe, inundation simulation and inspection of past data. The manager can browse the delivery information via the internet and can confirm the measured/forecast data and analytical value by a graph for six hours ahead from the past two hours. Figure1 is the overall monitoring display.

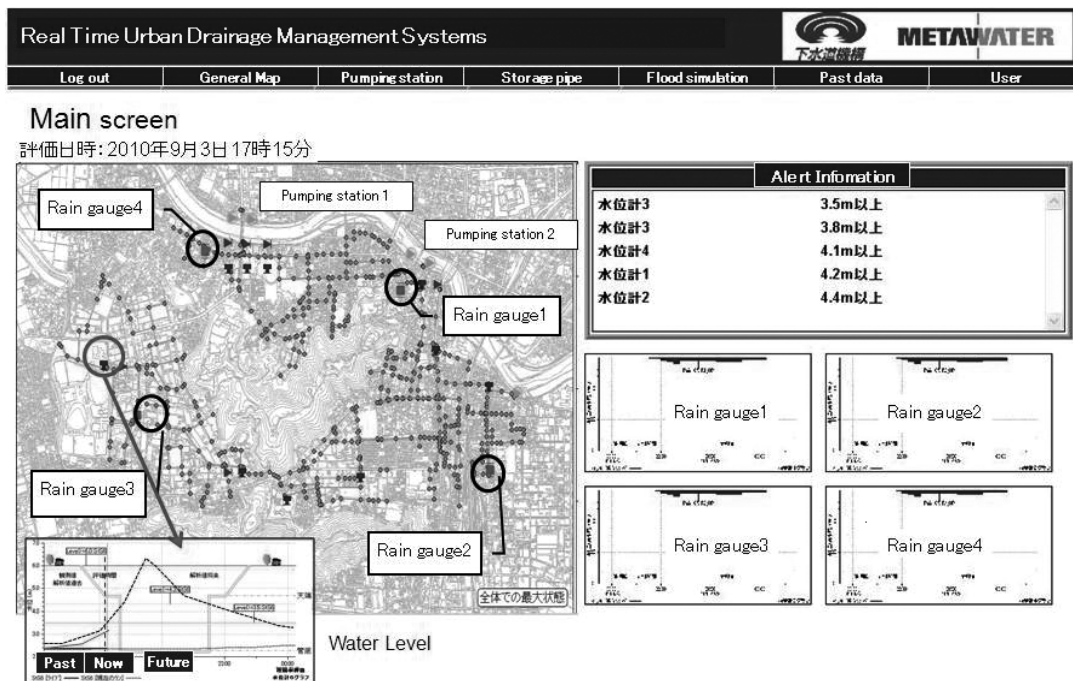


Figure 1. Overall monitoring display

(3) Evaluation of introduction effects

In the evaluation of the effects of introduction of the system, the “operational improvement of stormwater storage pipe and drainage pump,” “provision of inundation prediction information,” “concurrent use of storage pipes for flood control measures and CSO control” and “high-water level operation of intercepting pump” were covered to be applicable to the research field.

The total introduction effect was 2.8 times as much as the introduction/operation cost as shown in table 1.

Table 1. Introduction effects

Item		Annual cost (¥1000/year)	
Introduction + Operation (Cost)		27,000	
Effects (benefits)	1. Operational improvement of stormwater storage pipe and drainage pump	46,400	74,700
	2. Provision of inundation prediction information	18,000	
	3. Concurrent use of storage pipes for flood control measures and CSO control	10,000	
	4. High-water level operation of intercepting pump	300	
B/C = 2.8			

(4) Technical data of Real Time Urban Drainage Management Systems

The results of this research will be compiled in “Technical data” to be distributed to sewerage administrators of municipalities.

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Key words

Real-time, Flood control, CSO control