JBP
Japan Bosai Platform

構造計画研究所
KOZO KEIKAKU ENGINEERING Inc.

RiverCast

Real-Time Flood Forecast Cloud System

RiverCast

Hazard

Cyclone Storm Surge Flood

Solution Purpose

Prevention & Mitigation Preparedness

Solution Theme

Risk Assessment Disaster Prevention Plan Infrastructure Technology Information & Communication Technology

Technology Subject

Risk Monitoring Impact & Damage Simulation Mitigation Plan River & Basin Dam & Reservoir Coast Railways Port Urban Information Gathering Information Analysis & Judgement

Advantages

RiverCast is a cloud-based system that provides real-time river water level forecasts, based on the technology developed in collaboration with the University of Tokyo. It provides highly accurate predictions taking into account uncertainties caused by weather forecast errors, and enables rational decision-making for flood events.

Solution Illustrated

- ■ Accurately predicts unprecedented floods intensified by climate change.
- ■ Considers weather forecast uncertainty.
- ■ Provides exceedance probabilities of user-defined water level.
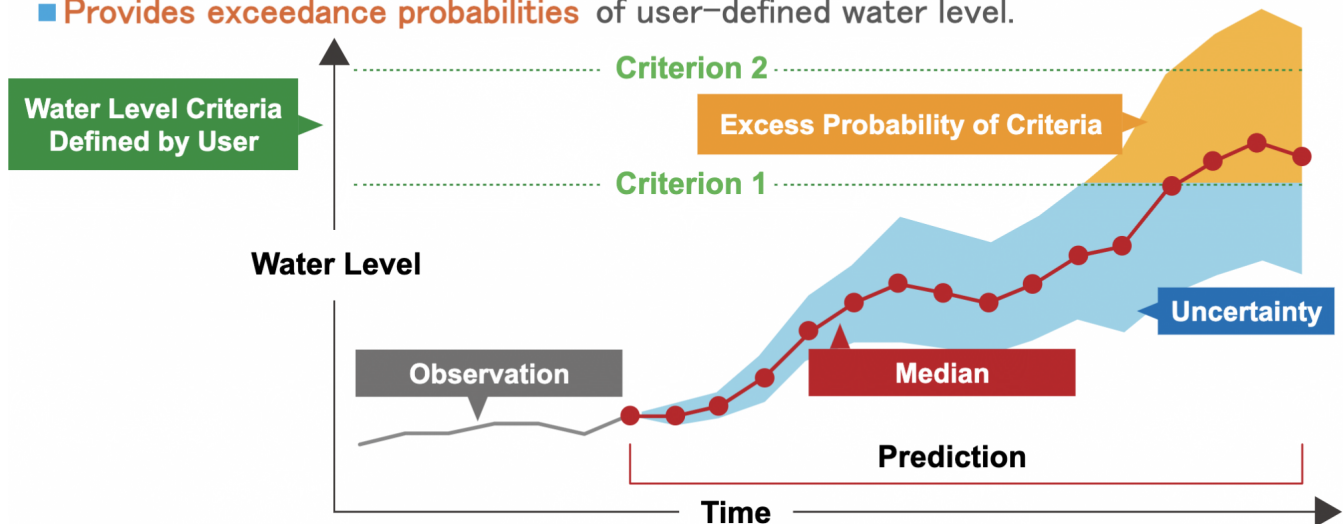
Background

- Prepare for the risk of river flooding

In recent years, heavy rainfall disasters have occurred across the country, and these incidents are expected to become more severe and frequent with climate change. Given this situation, several challenges exist in flood risk management.

Typical issues
- Difficulty in determining the right timing for action, even when early alerts are issued.
- Inefficient deployment of staff due to mobilization based on weather warnings.
- Lack of clear, evidence-based support for decision-making.

Exposition of the Solution

- The system can be deployed faster and with less cost compared to existing methods, and can also be applied to small to medium-sized rivers.

- Using state-of-the-art mathematical engineering technology, the system can predict water levels with high accuracy with little training data and is capable of predicting floods of unprecedented scale.

- Water level prediction is strongly affected by errors in weather forecasts, but RiverCast provides probabilistic water level prediction that takes rainfall errors into account and can display the confidence interval of the prediction and the probability of exceeding the standard water level, just like the probability circle and rainfall probability of a typhoon.

- As a cloud service, the system can be easily viewed from a computer or smartphone, with the function to notify the user by e-mail 24 hours a day, 365 days a year, at a specified time, or when the water level is predicted to rise.

< Downloaded from www.bosai-jp.org >

◆Effects / Expected Benefits

This system provides positive prediction results compared to existing methods, and its effectiveness in actual flood control activities has been confirmed.

We are currently developing projects using this system, and many private companies and municipalities have decided to deploy the system. In addition to evacuation decisions and flood prevention activities, the system is used for facility management around rivers and for safety management at construction sites.

Achievements of Examples

The effectiveness of this system has been verified by introducing the technology and conducting demonstration tests at more than 65 sites in 15 municipalities.

Other References

- Contact

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