

A Case of Utilizing Results

Wave Runup Forecast Started to Operate Effectively for Successive Invasion of Typhoons

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Key words: Storm surge, high wave, wave runup

1. Introduction

Large-scale storm surge disasters have often occurred in various places of the world, including the 2012 Hurricane Sandy in America and the 2013 Typhoon Haiyan in Philippines.

Japan was also hit by large scale disasters, including 2004 storm surge disasters by Typhoons Nos. 16 and 23 and the 2008 high wave disaster in Kurobe, Toyama. In order to minimize damage from such disasters, it is significant to grasp the risk of storm surge and high wave at an early stage and to use grasped information for disaster prevention behaviors.

Accordingly, the Coast Division conducted a project in the typhoon season of 2014 to provide actively the information obtained from "Wave Runup Forecast System," developed by our Division, to coast administrators, and we report the outline of the project as follows.

2. Outline of Wave Runup Forecast System

Wave runup height is a height when waves developed by a typhoon or low pressure run up a coastal levee etc. Since the risk of damage to levee will increase when wave runup exceeds the levee crest height, we developed "Wave Runup Forecast System" in order to forecast wave runup in advance.

As main mechanism, this System conducts the

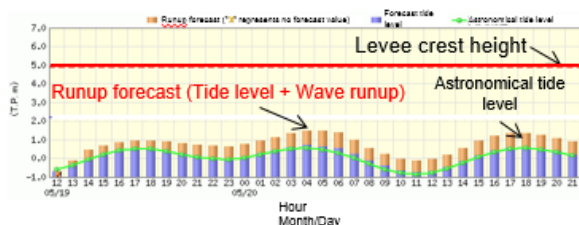
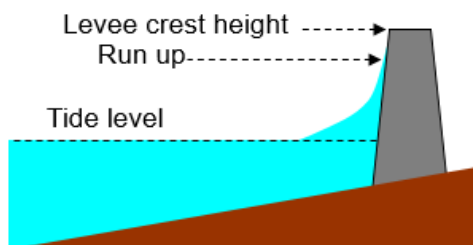


Figure 1. Schematic of Wave Runup Forecast System

prediction calculation of wave runup based on the storm surge / wave prediction data and terrain information of the Meteorological Agency and is able to forecast the condition after about 30 hours at 81 spots in Sendai Bay, Tokyo Bay, Sagami Bay, Suruga Bay, Ise Bay, Osaka Bay and Harima Sea, Toyama Bay, and Ariake Sea.

3. Activities in the 2014 typhoon season

This system had been operated on a trial basis as part of research and development activities, and in the 2014 typhoon season, the Coast Division personnel collected and organized forecast information on wave runup and actively provided the information to the coast administrators concerned. (Figure 2 provides a photo of the Harima Sea (Toban Coast))

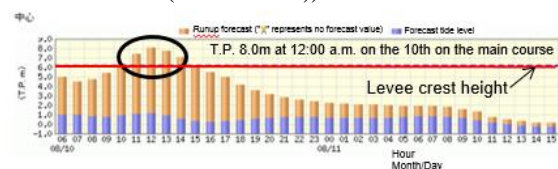


Figure 2. Forecast Information on Typhoon No. 11 (Aug. 10) (Toban Coast)



Photo: Toban Coast (around 11:00 a.m., Aug. 10)

4. Future development

In the "Ideal disaster prevention / mitigation for addressing a new stage," which was prepared by the Ministry of Land, Infrastructure and Transport (MLIT) in January 2015, importance of time line (time-series action plan) is indicated from a viewpoint of disaster prevention / mitigation. With the concept of this time line, we will continue to study how this forecast system is utilized by coast administrators.