

Research Trends and Results

Research Starts for Mitigating Disasters from Storm Surge and High Waves

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1. Background

Large-scale storm surge disasters have often occurred in various places of the world, including the 2005 Hurricane Katrina in America and the 2013 Typhoon Haiyan in Philippines.



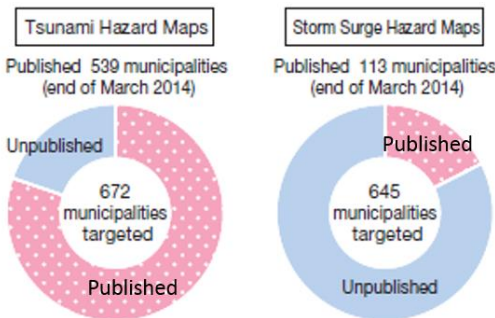
Inundation in New Orleans
 (Source: HP of FEMA)

Transfer by swamp boat

Photo: Disaster Caused by Hurricane Katrina

Japan has also suffered major storm surge disasters such as the 1959 Ise Bay Typhoon, and there are zero-meter areas in the Tokyo Bay, Ise Bay, and Osaka Bay, where population and assets are concentrated and the risk of storm surge disaster is high.

Meanwhile, the ratio of hazard map preparation concerning storm surge is low across the country as compared with tsunami, so it is not clarified which area is dangerous in case of storm surge.



Source) WHITE PAPER ON LAND, INFRASTRUCTURE, TRANSPORT AND TOURISM IN JAPAN, 2013

Figure. Hazard map preparation for tsunami and storm surge

Therefore, necessity for preparation and publication of estimated inundation by the maximum scale of storm surge was provided in the "Ideal disaster prevention / mitigation for addressing a new stage," which was prepared by the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) in January 2015. In February of the same year, "Technological Examination Committee for Strengthening Storm Surge Flood Control" (the "Committee") concerning the method, etc. for setting the assumptions of the maximum scale of storm surge inundation, in which the MLIT and the Ministry of Agriculture, Forestry, and Fisheries ("MAFF") serve as executive office, was founded.

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◎: Chairperson (titles omitted, in the order of the Japanese syllabary)	

Table. Technological Examination Committee for Strengthening Storm Surge Flood Control

2. Main issues and activities of the National Institute for Land and Infrastructure Management (NILIM)

Coast Division, as conditions for setting the assumptions of storm surge inundation, is conducting surveys and researches concerning the following:

- 1) Conditions for the maximum scale of typhoon (central pressure, radius of the maximum cyclostrophic wind speed, traveling speed, route);
- 2) Conditions for coastal levee break; and
- 3) River conditions considering simultaneous occurrence of flood and storm surge;

and also provides data useful for technological examination by the Committee.

3. Future schedule

In the future, the Committee, based on internal discussions, will technically support the documentation of "Manual for Assuming Storm Surge Inundation (tentative title)" by the executive office (MLIT and MAFF) and study how to manage information useful for warning and evacuation, including water level and wind speed in case of storm surge.