

Improved seismic hazard assessment after the 2011 Great East Japan Earthquake

*Hiroyuki Fujiwara¹, Nobuyuki Morikawa¹, Ken Xiansheng Hao¹

1. National Research Institute for Earth Science and Disaster Prevention

Since the 1995 Hyogo-ken Nanbu Earthquake, we have been conducting seismic hazard assessment (SHA) with National Seismic Hazard Maps for Japan under the guidance of the Headquarters for Earthquake Research Promotion of Japan (HERPJ). The National Seismic Hazard Maps for Japan summarized all of results of estimating strong motions caused by potential earthquakes that could occurring in the future. The national SHA maps consist of two kinds of maps. One is a probabilistic seismic hazard map (PSHM) that shows the relation between seismic intensity value and its probability of exceedance within a certain time period. The other one is a scenario earthquake shaking map (SESM). In order to promote the use of the National Seismic Hazard Maps, we have developed an open web system to provide information interactively, and named this system the Japan Seismic Hazard Information Station, J-SHIS.

The 2011 Great East Japan Earthquake (Mw 9.0) was the largest event in the recording history of Japan. This mega-thrust earthquake was not yet considered in the National Seismic Hazard Maps for Japan before it occur. Based on the lessons learned from this earthquake disaster, much efforts are being progressed to revise the seismic hazard assessment for Japan. We, as project staffs of the NIED, try to clarify the existed SHA problems and issues to be resolved and make proposals to improve seismic hazard assessment for Japan.

- (1) Re-modeling of seismic activity with no oversight to low-probability earthquakes.
- (2) Improvement of strong-motion evaluation considering low-probability earthquakes.
- (3) Development of methodology for complementary use of PSHM and SESM.
- (4) Improvement of techniques for prediction of strong-motion for mega earthquakes.
- (5) Improvement of utilization and transmission of seismic hazard information.

We have made a series of revisions of the seismic hazard assessment based on the revised versions of the long-term evaluation of seismic activity made by HERPJ. The newer revisions of long-term evaluation for seismic activity by HERPJ are still undergoing and then, we will update and revise continuously for the seismic hazard assessment.

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