

Development of Japan Seismic Hazard Information Station, J-SHIS

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<http://www.j-shis.bosai.go.jp/>

The Headquarters for Earthquake Research Promotion (HERP) published the national seismic hazard maps for Japan in March 2005, which was initiated by the earthquake research committee (ERC) on a basis of a long-term evaluation of seismic activity, and evaluation of strong ground motion. The seismic hazard maps have been updated every year since then. In the meantime, the National Research Institute for Earth Science and Disaster Prevention (NIED) also promoted a special research project of national seismic hazard mapping project of Japan (NSHMP) to support the preparation of the seismic hazard map from April 2001. Under guidance of ERC, we have carried out the study of the hazard map. The hazard map consists 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. Another one is a scenario earthquake shaking map (SESM). For the PSHM, we used an empirical attenuation formula following the seismic activity modeling by ERC, and evaluated peak ground velocity for sites at 0.25 km spacing. For the SESM, based on the seismic source modeling for strong-motion evaluation, we adopted a hybrid method to simulate waveforms at the engineering bedrock and peak ground velocity.

The national seismic hazard maps for Japan are a comprehensive integration from all of the research aspects conducted by HERP after the lessons learned from the 1995 Hyogo-ken Nanbu earthquake. It contains information of all necessary data for producing the maps. To cross-check and promote the use of the national seismic hazard maps, an engineering application committee was established by NIED. Under the committee guidance, we have developed and updated an open web system to provide information interactively, and named this system as Japan Seismic Hazard Information Station, J-SHIS. Our products are aimed to meet multi-purpose needs in engineering fields by providing information of the probabilistic seismic hazard analysis. The information provided from J-SHIS includes not only results of the hazard maps, but also various information to produce the hazard maps, such as data on seismic activities, seismic source models and underground structures.