

An earthquake forecast testing experiment with statistical seismology in Japanese earthquake prediction research program

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The current Japanese national earthquake prediction program, which inherits its essential observational network from all the previous programs, emphasizes the importance of modeling as well as monitoring for a sound scientific development of earthquake prediction research. Also, one major focus of the current program is to move toward creating testable earthquake forecast models. For this purpose, we joined the Collaboratory for the Study of Earthquake Predictability (CSEP) and installed, through an international collaboration, the CSEP Testing Centre, an infrastructure to encourage researchers to develop testable models for Japan and to conduct verifiable prospective tests of their model performance. In 2009 we started the 1st earthquake forecast testing experiment for the Japan area within the CSEP framework .

The experiment consists of 12 categories, with 4 testing classes with different time spans (1 day, 3 months, 1 year and 3 years) and 3 testing regions called All Japan, Mainland, and Kanto. A total of 203 models, as of November 2012, were submitted, and are currently under the CSEP official suite of tests for evaluating the performance of forecasts. I will give an idea how good results we will have. Also, we have conducted retrospective earthquake forecast experiments for aftershocks of the 2011 Tohoku-oki earthquake and 3-D seismicity in Kanto region. Our aim is to describe what has turned out to be the first occasion for setting up a research environment for rigorous earthquake forecasting in Japan.

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