

## CSEP-Japan: Report on prospective evaluation of earthquake forecasts in Japan

YOKOI, Sayoko<sup>1\*</sup>, NANJO, Kazuyoshi<sup>1</sup>, TSURUOKA, Hiroshi<sup>1</sup>, HIRATA, Naoshi<sup>1</sup>

<sup>1</sup>ERI, Univ Tokyo

Collaboratory for the Study of Earthquake Predictability (CSEP) is a global project of earthquake predictability research. The final goal of this project is to look for the intrinsic predictability of the earthquake rupture process through forecast testing experiments. The Earthquake Research Institute, the University of Tokyo joined the CSEP and started the Japanese testing center called as CSEP-Japan. This testing center constitutes an open access to researchers contributing earthquake forecast models for applied to Japan. A total of 105 earthquake forecast models were submitted on the prospective experiment starting from 1 November 2009. The models are separated into 4 testing classes (1 day, 3 months, 1 year and 3 years) and 3 testing regions covering an area of Japan including sea area, Japanese mainland and Kanto district. We evaluate the performance of the models in the official suite of tests defined by the CSEP.

The experiments of 1-day, 3-month and 1-year forecasting classes were implemented for 92, 7 and 4 rounds, respectively. The results of the respective classes are summarized as follows. Before the 2011 Tohoku off earthquake, on the 1-day testing class, all models passed all the CSEP's evaluation tests at more than 90% rounds. The results of the 3-month and 1-year classes gave us new knowledge concerning statistical forecasting models. All models showed a good performance for magnitude forecasting. On the other hand, observation is hardly consistent in space-distribution with most models in some cases where many earthquakes occurred at the same spot.

In this presentation, we will discuss the results of the experiments, and discuss direction of our activity. See also Tsuruoka et al. who overview the CSEP-Japan in this meeting. An outline of the experiment and activities of the CSEP-Japan is published on our WEB site; <http://www.eri.u-tokyo.ac.jp/ZISINyosoku/wiki.en/wiki.cgi>

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