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# A forecast experiment of earthquake activity under Japanese Research Program for Prediction of Earthquakes

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The Japanese national earthquake prediction program started in 1962 with a blue print for the scope and direction of research to follow. Substantial time and efforts were subsequently devoted to the construction of new observation networks and the study on the earthquake generation mechanisms. An important result has been the recognition of the great difficulty in identifying creditable precursors due to a diversity of earthquake generation process. After the 1995 Kobe earthquake, a new age of near real time observations of Earth's crustal processes by dense arrays of seismic and the GPS (Global Positioning System) stations has arrived. The results of the real time monitoring may lead to a new approach in the earthquake prediction research, i.e., the quantitative forecasting of the crustal activities. The new national 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 (Hirata, 2004). The current prediction research program is integrated with that of volcanic eruptions since 2009.

One major focus of the current Japanese earthquake prediction research program (2009-2013) is to move toward creating testable earthquake forecast models. For this purpose we started an experiment of forecasting earthquake activity in Japan under the framework of the Collaboratory for the Study of Earthquake Predictability (CSEP) through an international collaboration. We established 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.

I will discuss the recent results and achievement of the current prediction research program, which has been seriously reviewed since the 2011 M9 Off-Tohoku earthquake. I will review results by statistical seismology, including CSEP activity, which should be correctly integrated with a physics-based forecasting model.

References

N. Hirata , Past, current and future of Japanese national program for earthquake prediction research, Earth Planets Space, 56, xliii?l, 2004

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