



High-Resolution Long-Term Earthquake Forecasts for California and Italy

M. J. Werner (1), A. Helmstetter (2), D. D. Jackson (3), and Y. Y. Kagan (3)

(1) Swiss Seismological Service, ETH Zurich, Switzerland (max.werner@sed.ethz.ch), (2) LGIT, Université Joseph Fourier, Grenoble, France, (3) Department of Earth and Space Sciences, UCLA, USA

We present five-year and ten-year estimates of $m > 5$ earthquake probabilities in California and Italy. The forecasts will be tested independently and prospectively in the global Collaboratory for the Study of Earthquake Predictability (CSEP). Our long-term forecasts are calculated from smoothing declustered seismicity and assuming a tapered Gutenberg-Richter magnitude distribution. We carefully account for catalog completeness issues and optimize the amount of smoothing in retrospective tests. Confirming a previous finding, retrospective tests suggest that including small $m > 2$ earthquakes significantly improves the spatial forecast of $m > 5$ earthquakes. In contrast to other, relatively smooth models in CSEP, our forecasts have high spatial resolution - a feature apparently responsible for the model's current lead in the 19-model, five-year RELM experiment in California. We compare the Californian and Italian forecasts and evaluate the performance of the forecasts using the likelihood score.