

Experiences in Operation Earthquake Forecasting in New Zealand

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Since the initiation of the Canterbury Earthquake Sequence in 2010 we have gained considerable experience in modelling and communicating aftershock forecasts. The 2011 report by the International Commission on Operational Earthquake Forecasting (Jordan, et al, 2011) describes the first international standard for the application and development of operational earthquake forecasting, which we have aimed to follow in producing our forecasts to the varied list of end-users. These users range from the general public though to technical end-users in government and industry. Our primary scientific aims in developing the forecasts have been to use tested and understood models and to include the large epistemic uncertainty in the process. Early demands from end-users have reinforced the need for our forecasts to move beyond short-term (e.g., 24 hour forecasts) and to forecast for lengths of months to decades. In this presentation I will describe our recent forecasting procedures and discuss current projects helping to shape our future Operation Earthquake Forecasting model. I will also discuss some of the scientific challenges we have faced. Some of these include the quality of real-time data, the significant uncertainty in long-term models, and how to test and optimise models. Finally I will discuss what we have learned through our interactions with the social science community and how we are adapting the information we provide to make it the most use to those who may benefit from it.