



Daily real-time earthquake forecast during L'Aquila sequence

Warner Marzocchi and Anna Maria Lombardi

Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy (warner.marzocchi@ingv.it)

Here, we describe the results of this first real-time daily aftershock forecast made in Italy. Immediately after the recent Mw 6.3 earthquake – that struck near the city of L'Aquila, Italy on April 6, 2009, causing hundreds of deaths and vast damages – we began producing daily one-day earthquake forecasts for the region, and we provided these forecasts to Civil Protection – the agency responsible for managing the emergency. The forecasts are based on a stochastic model that combines the Gutenberg-Richter distribution of earthquake magnitudes and power-law decay in space and time of triggered earthquakes. After presenting the model and the forecasts, we briefly describe three main related issues. First, we have taken this unique opportunity to check the reliability of the model in a pure prospective testing. This is a basic point, because operational forecasts require reliable and skillful models. Second, we explore (retrospectively) how this model would have performed in forecasting the mainshock. Third, we emphasize the actual and prospective way in which these forecasts are used now, and can be used in the future, to mitigate seismic risk.