ESC2016-125, 2016
35th General Assembly of the European Seismological Commission

35th General Assembly of the European Seismological Commission
4–10 September 2016
Trieste

Operational earthquake loss forecasting

Iunio Iervolino
Università degli Studi di Napoli Federico II (iunio.iervolino@unina.it)

The seismological community is currently developing operational earthquake forecasting (OEF) systems that aim to estimate the seismicity in an area of interest. OEF possibly may be used for short-term seismic risk management in regions affected by seismic swarms only if its results may be the input to compute, in a probabilistically sound manner, consequence-based risk metrics. The study reports on the feasibility of short-term risk assessment, or operational earthquake loss forecasting (OELF), in Italy. The approach is that of performance-based earthquake engineering and the risk is expressed in terms of individual and regional measures, which are based on short-term macroseismic intensity (or ground-motion intensity) hazard. The vulnerability of the built environment relies on damage probability matrices empirically calibrated for Italian structural classes; the exposure is represented in terms of buildings per vulnerability class and occupants per building typology. The developed procedure, which is virtually independent of the seismological model used, is implemented in an experimental OELF system (MANTIS-K) that continuously processes OEF information to produce nationwide risk maps applying to the week after the OEF data release.