

Rapid Earthquake Hazard and Loss Assessment for Euro-Mediterranean Region

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A b s t r a c t

The almost-real time estimation of ground shaking and losses after a major earthquake in the Euro-Mediterranean region was performed in the framework of the Joint Research Activity 3 (JRA-3) component of the EU FP6 Project entitled “Network of Research Infra-structures for European Seismology, NERIES”. This project consists of finding the most likely location of the earthquake source by estimating the fault rupture parameters on the basis of rapid inversion of data from on-line regional broadband stations. It also includes an estimation of the spatial distribution of selected site-specific ground motion parameters at engineering bedrock through region-specific ground motion prediction equations (GMPEs) or physical simulation of ground motion. By using the Earthquake Loss Estimation Routine (ELER) software, the multi-level methodology developed for real time estimation of losses is capable of incorporating regional variability and sources of uncertainty stemming from GMPEs, fault finiteness, site modifications, inventory of physical and social elements subjected to earthquake hazard and the associated vulnerability relationships.

Key words: rapid earthquake hazard, Euro-Mediterranean earthquakes, Earthquake Rapid Response System, seismic loss assessment.