



Development of Rapid Earthquake Loss Assessment Methodologies for Euro-Med Region

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For almost-real time estimation of the ground shaking and losses after a major earthquake in the Euro-Mediterranean region the JRA-3 component of the EU Project entitled “Network of research Infrastructures for European Seismology, NERIES” foresees:

1. Finding of the most likely location of the source of the earthquake using regional seismotectonic data base, supported, if and when possible, by the estimation of fault rupture parameters from rapid inversion of data from on-line regional broadband stations.
2. Estimation of the spatial distribution of selected ground motion parameters at engineering bedrock through region specific ground motion attenuation relationships and/or actual physical simulation of ground motion.
3. Estimation of the spatial distribution of site-specific ground selected motion parameters using regional geology (or urban geotechnical information) data-base using appropriate amplification models.
4. Estimation of the losses and uncertainties at various orders of sophistication (buildings, casualties)

Main objective of the JRA-3 wprk package is to develop a methodology for real time estimation of losses after a major earthquake in the Euro-Mediterranean region. The multi-level methodology being developed together with researchers from Imperial College, NORSTAR and ETH-Zurich is capable of incorporating regional variabilities and sources of uncertainty stemming from ground motion predictions, fault finiteness, site modifications, inventory of physical and social elements subjected to earthquake hazard and the associated vulnerability relationships.

A comprehensive methodology has been developed and the related software ELER is under preparation.

The applications of the ELER software are presented in the following two accompanying papers.

1. Regional Earthquake Shaking and Loss Estimation
2. Urban Earthquake Shaking and Loss Assessment