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Rapid Earthquake Hazard and Loss Assessment with ELER© Software

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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 EU FP6 Project NERIES foresees:
1. Finding of the most likely location of the source of the earthquake using regional seismo-tectonic data base,
2. Estimation of the spatial distribution of selected ground motion parameters at engineering bedrock through region specific ground motion prediction models, bias-correcting the ground motion estimations with strong ground motion data, if available,
3. Estimation of the spatial distribution of site-specific ground selected motion parameters using regional geology database using appropriate amplification models.
4. Estimation of the losses and uncertainties at various orders of sophistication (buildings, casualties).
The multi-level methodology developed for real time estimation of losses is capable of incorporating regional variability 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. This methodology was coded into the software called ELER©. ELER© has been successfully used for the rapid estimations of the building damages and casualties in recent earthquakes in Turkey.