



A GIS interface to the new Euro-Mediterranean Tsunami Catalogue produced by the TRANSFER Project

Sara Carolina Gallazzi (1), Stefano Tinti (1), Alberto Armigliato (1), Alessandra Maramai (2), and Antonio Patera (3)

(1) University of Bologna, Physics, Bologna, Italy (sara.gallazzi@gmail.com), (2) Istituto Nazionale di Geofisica e Vulcanologia (INGV), Sezione Roma 2, Unità Funzionale "Ricerche Interdisciplinari Geo-marine", Rome, Italy, (3) Istituto Nazionale di Geofisica (INGV), Sezione di Bologna, Unità Funzionale "Pericolosità Sismica e Vulcanica", Bologna, Italy

TRANSFER, acronym standing for "Tsunami Risk AND Strategies For the European Region", is a three-year EU-funded research project that tackled all the main fields of interest in tsunami research, ranging from the improvement of the existing tsunami catalogue and the inventory of seismic and non-seismic tsunami sources, to the assessment of tsunami hazard, vulnerability and risk through innovative deterministic and statistical methodologies, with the final goal of identifying the best strategies for the reduction of tsunami risk. One of the largest efforts produced by the TRANSFER consortium has been to convey all the results obtained during the project life into a unique and standardised GIS platform. We present here in some detail the GIS implementation of the improved version of the Euro-Mediterranean Tsunami Catalogue, which is the result of a careful revision, re-analysis, correction and integration of the results produced in the nineties by the EU funded GITEC and GITEC-TWO projects. All the TRANSFER partners involved in this work made some relevant improvements of the quality of the database, in terms of inclusion of new events or updating (or even exclusion) of existing events. The major improvements introduced in the TRANSFER tsunami catalogue with respect to the previous ones are: 1) the enlargement of the geographical area containing historical events (now the catalogue integrates events belonging to the Levantine sea and to Iceland); 2) the inclusion of the tide-gauge data relative to specific historical events; 3) for few events, the position of the places for which tsunami run-up and inundation data are available; 4) the introduction of the 12-points tsunami intensity scale by Papadopoulos and Imamura (2001). The GIS environment and the power of the underlying Relational Database Management Systems (RDBMS) allows to query the database in several respects. The most obvious starts from the geographical map containing the position of the historical events plotted with symbol size and colours depending on their intensities. Two main ArcGIS tools are then used to access the other information on the event. The "Identify" tool opens up a mask from which the user can retrieve all the details on date, time, source region and sub-region, reliability, cause, source parameters (intensity, magnitude and focal depth for earthquakes), position of the source. In the same mask, different layers give access to the list of places hit by that specific tsunami, containing the position of the site and the maximum reported run-up and inundation distance, when available. Moreover, it contains the list of references to studies dealing with that particular event. On the other hand, the "Hyperlink" tool opens up a text file containing the full description of the event and, when available, diagrams of measured sea-level data and photographs or similar material. The whole catalogue can be accessed and queried also in table format, allowing the user to perform his/her specific searches.