Probabilistic Tsunami Hazard Mapping in the NEAM Region: results of the TSUMAPS-NEAM Project

Roberto Basili and the TSUMAPS-NEAM Team

Istituto Nazionale di Geofisica e Vulcanologia, Roma1, Roma, Italy (roberto.basili@ingv.it)

Probabilistic Tsunami Hazard Assessment (PTHA) is an indispensable step toward long-term coastal planning and for effectively designing and using Tsunami Warning Systems.

The TSUMAPS-NEAM project was devoted at producing the first region-wide long-term homogenous PTHA map from earthquake sources for the coastlines of the North-East Atlantic, the Mediterranean, and connected Seas (NEAM) region.

The hazard assessment was built upon state-of-the-art procedures and standards, enriched by some rather innovative/experimental approaches such as: (1) the statistical treatment of potential seismic sources, combining all the available information (seismicity, moment tensors, tectonics), and considering earthquakes occurring on major crustal faults and subduction interfaces; (2) an intensive computational approach to tsunami generation and linear propagation across the sea up to an offshore fixed depth; (3) the use of approximations for shoaling and inundation, based on local bathymetry, and for tidal stages; and (4) the exploration of several alternatives for the basic input data and their parameters which produces a number of models that are treated through an ensemble uncertainty quantification.

This presentation will summarize how the TSUMAPS-NEAM project achieved its goals, illustrate the PTHA online data, and discuss possible strategies for future PTHA efforts.