



Generic tsunami scenarios for disasters and early warning preparedness

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The implementation of the tsunami early warning systems in the NE Atlantic and Mediterranean regions will occur in countries with no preparedness and very little knowledge of potentially affected coastal zones by the various tsunami sources.

The final link to coastal communities will be sirens to distribute in the concerned areas.

The SCHEMA project aims at elaboration of a generic method to consider various parameters of a particular tsunami scenario.

A scenario corresponds to a specific source with a given magnitude or intensity. Since we do not consider only the remote sources with possibilities of warning, local earthquake and submarine landslides are also translated in scenarios to allow the civil protections, municipalities and local stakeholders to assess cases with no real warning possibility, where life will be saved by self evacuation in nearby shelter areas or buildings.

The specific temporal dimension of tsunami phenomenon is considered. Oceanic propagation time, expected duration of dangerous waves and wavelength are taken into account with their level of uncertainties. Scenarios are presented by maps and layouts with various information: inundation extension, submersion depth, receding sea limit, currents velocity or modulus of flow, modeled damage level to buildings, affected networks and lifelines. Variable dimensions such as residing or working population, by hour of the day and by season are also considered. Secondary vulnerability factors which may increase damage level to buildings are added (potentially floating objects which may turn into projectiles). The potential evacuation routes and obstacles are represented to support installation of warning networks and definition of shelters as well as evacuation routes. The scenarios are calculated using accurate digital bathymetric and topographic model with less than 10 m ground resolution allowing a very detailed mapping. This accuracy is especially important for scenarios with moderate waves for which inland penetration is highly dependant of coastal micro-topography. The approach is tested against local users and stakeholders needs and adapted to up to date NEAMTWS requirements.