



Towards tsunami hazard assessment for the coasts of Italy

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Mediterranean shorelines have been repeatedly struck by large tsunamis in the past. The current understanding of offshore seismogenic sources is indicative of a potentially destructive tsunami hazard, which is turned into potential high risk for the concentration of population, infrastructures, and activities on coastal plains. Nevertheless, official tsunami hazard maps do not exist for the Italian coasts.

Since large tsunamis are relatively rare events, tsunami hazard assessment must rely on diverse sources of information to integrate historical catalogues, including knowledge on the active tectonics and seismicity rates, geodetic monitoring, paleotsunami evidences, and any data that can be indicative of the frequency and magnitude of tsunamigenic events. Similarly to current practices in seismic hazard assessment, the bulk of this information should be conveyed into a probabilistic framework, taking into account significant tsunami peculiarities, such as the role and importance of distant but large sources, while properly treating all of the relevant uncertainties. Differently from seismic hazard assessment where the ground shaking can be readily calculated by using ground motion prediction equations, probabilistic tsunami hazard implies the calculation of a huge number of numerical scenarios. Even with current computational capabilities, the production of probabilistic inundation maps requires specific strategies of computational burden reduction to make it a feasible task.

Here, we present preliminary results of probabilistic tsunami hazard assessment for the coasts of (southern) Italy based on the above concepts. We mainly focus on methodological aspects, and limit our study to tsunamis of tectonic origin.