



Tsunami hazard assessment in the Mediterranean: results from the analysis of the TRANSFER project tsunami catalogue and from a hybrid statistical-deterministic approach

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We investigate the exposure of the Mediterranean coastlines to tsunamis relying upon two different tools. The first consists in the critical analysis of the tsunami catalogue produced by the EU-funded project called TRANSFER (Tsunami Risk AND Strategies For the European Region). This catalogue covers the whole Euro-Mediterranean area and it represents a significant evolution of the catalogues compiled by two previous EU-projects (GITEC e GITEC-TWO), of which it shares the main criteria of compilation. The improvements introduced by the TRANSFER catalogue include a complete re-examination of all events, with the exclusion of some contained in the previous catalogues and revised as false, and the inclusion of new events: the last version of the TRANSFER catalogue contains 322 events, 106 more than the previous catalogues. In addition, in the TRANSFER catalogue the geographic area covered is wider and includes also events occurred in the Levantine area. Finally the TRANSFER catalogue has been implemented on a GIS (Geographic Information System) platform. We analyse the catalogue by compiling suitable frequency tables, like for instance the time distribution of events per reliability classes, the time distribution of events per sub-region, the time distribution of the intensities, the frequencies of the tsunamigenic causes.

The second tool we adopt in our tsunami hazard assessment is based on an evolution of the approach proposed by Tinti (1991) and Tinti et al (2005). The approach is applicable only to tsunamis of tectonic origin and it is composed by a statistical and a deterministic part (this is why we call it hybrid) and is based on a complex analysis of the regional earthquake catalogues covering the Mediterranean, including homogeneization, completeness analysis, statistical estimation of earthquake occurrences, etc. The final aim is to compute the number of tsunamigenic earthquakes expected to occur on a given time interval and to produce tsunami heights larger than a given threshold along the coasts. We will apply the method to the main tsunamigenic regions of the Mediterranean sea and compare the results obtained with the information deducible from the TRANSFER tsunami catalogue.