



Space-Time Distribution of Tsunami Impact in the European-Mediterranean Region as Results from a New Tsunami Catalogue

Georgia Diakogianni, Gerassimos Papadopoulos, Anna Fokaefs, Antonia Papageorgiou, and Ioanna Triantafyllou
National Observatory of Athens, Institute of Geodynamics, Athens, Greece (papadop@noa.gr)

We have compiled a new tsunami catalogue covering the entire European and Mediterranean (EM) region from pre-historical times up to the present. The catalogue is of increased completeness and homogeneity with respect to previous ones containing more than 370 events with reliability assignment to all the events listed. New historical events were inserted, while revised parameters of historical tsunamigenic earthquakes were extensively adopted particularly for the most active region of the eastern Mediterranean. In association to the catalogue, an inventory of tsunami impact was created with the main attributes being the numbers of people killed and injured, the damage to buildings, vessels, cultivated land and to other property. The inventory includes also a record of the tsunami environmental impact, such as soil erosion, geomorphological changes, boulder replacement and tsunami sediment deposits. Data on the tsunami impact were used to assign tsunami intensity in the 12-point Papadopoulos-Imamura (2001) scale for the majority of the events listed. The tsunami impact was studied as for its space and time distribution. In space, the tsunami impact was mapped in terms of tsunami intensity and impact zones were determined. The time distribution of the tsunami impact was examined for each one of the impact zones. Leaving aside large pre-historical tsunamis, such as the one produced by the LBA or Minoan eruption of Thera (Santorini) volcano, due to the lack of certain impact data, it has been found that the main impact comes from extreme, earthquake tsunamigenic events, such the ones of AD 365 in Crete, 551 in Lebanon, 1303 in Crete, 1755 in Lisbon. However, high impact may also occur from events of lower magnitude, such as the 1908 tsunami in Messina straits and the 1956 tsunami in the South Aegean, which underlines the strong dependence of the impact on the community exposure. Another important finding is that the cumulative impact of relatively moderate or even small, local tsunamis, produced by earthquakes, landslides or volcanic activity, is quite important and that such a distributed tsunami impact should not be neglected in actions undertaken for the tsunami risk mitigation. This research is a contribution to the EU-FP7 tsunami research project ASTARTE (Assessment, Strategy And Risk Reduction for Tsunamis in Europe), grant agreement no: 603839, 2013-10-30.