Geophysical Research Abstracts, Vol. 9, 02592, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-02592

The 28 December 1908 Messina Strait (Sicily, Italy) Destructive tsunami: A reconstruction of the effects

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The 1908 Messina earthquake (M=7.2) is one of the strongest historical seismic events that ever occurred in Italy, with more than 60,000 casualties and extensive damage produced in Sicily and Calabria. It was felt in a radius of about 300 km, with maximum damage (XII MCS) occurring in the cities of Messina and Reggio Calabria. This earthquake was accompanied by the most destructive tsunami that hit the Italian coast. Several source models have been proposed in the literature, some of them also using tsunami data to add reliable information for the identification of the fault mechanism. The tsunami, starting with a relevant withdrawal along the Sicily coast which was followed by a large inundation, produced a measured maximum run-up exceeding 13 m and a maximum water penetration of 200 m.

Since 1908 the involved area has seen a considerable socio-economical, industrial and tourist development, with an extreme urbanization along the coast.

The aim of this work is to reconstruct the tsunami effects along the Sicilian and Calabrian coasts, in order to evaluate the potential tsunami impact for similar possible future events in this area, also to calibrate appropriate countermeasures for mitigation. With the help of historical maps the reconstruction of the inundation line along the coasts and in the affected cities will be performed. To better represent global effects, the available data will be organised in a GIS-type graphic shell database.

This work represents a tool for risk analysis studies finalized at the realization of inundation maps in the frame of the EU TRANSFER project.