EARTHQUAKE-INDUCED TSUNAMIS IN THE MEDITERRANEAN SEA: SCENARIOS OF POTENTIAL THREATS TO SOUTHERN ITALY

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Method

Source selection (Fig.2) 3 seismic zones:
- Algeria (Fig.4): 15 potential sources
- Southern Tyrrhenian Sea (Fig.8): 53 potential sources
- Hellenic arcs (Fig.12): 9 potential sources

Conclusions

In the present work we considered 3 seismic zones that are potentially capable to generate tsunamis in the Mediterranean Sea: Hellenic, Southern Tyrrhenian and Algeria. These zones are of major interest because they lay mostly exposed to these tsunamis. We found that 49.6% of the coast of Algeria may produce maximum water heights as large as 1 m along the southern coast. A moderate earthquake along the Southern Tyrrhenian structure may induce water heights on the order of 0.5 m along the northern coast of Sicily. The most dangerous seismogenic source is a potential M=8 occurring along the Hellenic arc in this area capable of generating strong tsunamis in the Hellenic area. Among these, three sample areas located in Sicily may be of potential interest for the evacuation plan (Fig.7). The most dangerous coast stretches of Sicily and Sardinia may also be considered potential tsunami sources. The main tsunami threats of the Mediterranean region are represented by these three seismic zones, in particular the Hellenic arc.

Hellenic arc sources (Fig.12): 15 potential sources

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d) Tsunamis in the Mediterranean Sea. This database may be used to assess the tsunami impact. In case of event occurrence, it may be quickly accessed for a real-time detection of the most exposed coasts and for a rapid evaluation of the tsunami impact.

Fig.12. Mediterranean seismic sources setting

Fig.13. Tsunamis in the Mediterranean Sea. This database may be used to assess the tsunami impact. In case of event occurrence, it may be quickly accessed for a real-time detection of the most exposed coasts and for a rapid evaluation of the tsunami impact.

Fig.14. Tsunamis in the Mediterranean Sea. This database may be used to assess the tsunami impact. In case of event occurrence, it may be quickly accessed for a real-time detection of the most exposed coasts and for a rapid evaluation of the tsunami impact.