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The Decision Matrix for Early Tsunami Warning in the Mediterranean Sea revisited

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After the generation of the large Indian Ocean 2004 tsunami a systematic effort started for the establishment of regional, national and local early tsunami warning systems in Europe under the co-ordination of IOC/UNESCO. Within this initiative an empirical matrix was developed as a tool supporting decisions about the tsunamigenic or non-tsunamigenic nature of a particular earthquake in real-time conditions. The decision matrix is based on the focal parameters of the earthquakes, that is the location of the earthquake epicenter (offshore or inland), the focal depth (shallow or intermediate depth) and the earthquake magnitude. The data set covers the instrumental period of seismicity. The lower magnitude threshold required for the generation of an important tsunami is about 6. It has been found that offshore, strong ($M \geq 6$) shallow earthquakes have increasing probability for the tsunami generation with the increase of magnitude. However, during 2008 several strong earthquakes of $M > 6$ occurred along the Hellenic arc and trench system which is the most tsunamigenic in the European-Mediterranean region. None of them was reported to have produced even small tsunami-like sea-level disturbances. Therefore, we re-examine the empirical rules which compose the initial tsunami decision matrix under the light of the updated earthquake data set. We found that on the basis of the earthquake data of the period 1900-2008 only minor change of the rules comes out and that for the time being there is no urgent need to revise the tsunami decision matrix adopted so far. In addition, we examine separately the tectonic rift of Corinth Gulf, Central Greece, due to the historically documented exceptionally high rate of tsunamigenesis there. The examination shows that the percentage of strong earthquakes that produce tsunamis is systematically higher than in the rest Greece for all the magnitude range of strong earthquakes. This implies that a particular decision matrix could be proposed for the Corinth Gulf.