



Integrating fault data into tsunami hazard studies

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Tsunamigenic earthquake faults are usually located offshore and are therefore hardly accessible. Mapping these faults require to look for appropriate data and to adopt different strategies from those adopted on land for carefully addressing geometric and behavioral characteristics and related uncertainties.

We present a methodological study of investigation and parameterization of potentially tsunamigenic earthquake faults to be used as basic input for tsunami-wave numerical modeling in probabilistic tsunami hazard assessment. For this scope, tsunamigenic earthquake sources are first subdivided into two categories according to the tectonic environment of origin: (1) “crustal sources” which include all faults in the upper crust, near the coast or offshore, and faults located in the upper plate of subduction systems; (2) “subduction sources” which include the shallower slab interface, splay faults, and intraslab faults. For all the necessary parameters of each of the studied tsunamigenic sources we defined a range of values to capture their variability. Each source is also assigned to a classification that reflects the level of confidence for its existence.

Considering that our target area is the coast of southern Italy and that tsunami waves can travel long distances preserving most of their harmful power, we investigated the above types of sources in the Central and Eastern Mediterranean. We will illustrate the results of our mapping and characterizing tsunamigenic earthquake faults and how these data interface with a logic-tree approach in tsunami hazard studies.