

Title: Evaluating Tsunami Impact on the Gulf of Cadiz Coast (Northeast Atlantic)

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Abstract: The Gulf of Cadiz coasts are exposed to tsunamis. Emergency planning tools are now taking into account this fact, especially because a series of historical occurrences were strikingly significant, having left strong evidence behind, in the mareographic records, the geological evidence or simply the memory of the populations. The study area is a strip along the Algarve coast, south Portugal, an area known to have been heavily impacted by the 1 November 1755 event. In this study we use two different tsunami scenarios generated by the rupture of two thrust faults identified in the area, corresponding to 8.1-8.3 magnitude earthquakes. Tsunami propagation and inundation computation is performed using a non-linear shallow water code with bottom friction. Numerical modeling results are presented in terms of flow depth and current velocity with maximum values of 7 m and 8 m/s for inundation depth and flow speed, respectively. These results constitute a valuable tool for local authorities, emergency and decision planners to define the priority zones where tsunami mitigation measures must be implemented and to develop tsunami-resilient communities.

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