



## **Tsunami hazard assessment for French coastlines constrained by numerical modeling**

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The 2003 Mediterranean tsunami generated by the Boumerdes-Zemmouri earthquake (Mw 6.9) reminds us of the possibility for intermediate submarine earthquakes to generate moderately damaging tsunamis in the area of interest. A field survey allowed us to identify several harbours in the French Riviera where disturbances related to local resonances have been reported during the tsunami. This database illustrates well which kind of effects a moderate tsunami can produce on coastal infrastructures. In this study, we discuss the effect of moderate earthquake-generated tsunamis on the French coasts. To this aim, we use real tsunami events like the 1969 and 1755 earthquakes off Portugal for the Atlantic region, and the Boumerdes-Zemmouri event (2003) for the Mediterranean region. Available observed data are synthesized, and are compared to tsunami modeling results. We use a numerical tsunami simulation based on non linear shallow water equations and using imbricated bathymetric grids to simulate tsunami propagation from source to more detailed areas. The recent adaptation of our code to massive computing center allows us to compute some scenarios with numerous points of interest along the French coast. This allows computing the tsunami effects in some harbours and bays, especially in terms of local resonances. High resolution grids, which are set up for the last grids level, are made from digitized, georeferenced and interpolated nautical bathymetric charts, and bathymetric soundings from SHOM (French Navy Hydrographic Service). The objective is also to discuss the tsunami hazard for the French Mediterranean coastline, which is rather poorly known to date, and thus we use different earthquake source parameters for the Mediterranean.