

The tsunami-like sea level disturbance in Crotona harbor, Italy, after the Mw6.5 strike-slip earthquake of 17 November 2015 in Lefkada Isl., Ionian Sea, Greece

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On 17 November 2015 an Mw6.5 earthquake ruptured offshore Lefkada Isl. in Ionian Sea, Greece, causing two human victims, minor damage and several ground failures including coastal landslides. Fault plane solutions released by CMT/Harvard, NOA and other institutes have indicated that the faulting style was strike-slip right-lateral, which is quite typical for the area, as for example, the Mw6.3 event that occurred on August 14, 2003, in exactly the same fault zone. In spite of the very low tsunami potential commonly associated to this faulting mechanism, a tsunami-like sea level change was recorded after the earthquake by one tide-gauge in the Crotona harbor, Italy. Preliminary tsunami numerical simulations were performed to reproduce the observed signal. The spectral analysis of the synthetic mareograms close to the entrance of the harbor shows the presence of some peaks that could justify the relation between the natural port resonance and the observed wave amplification. Of particular interest is the coupling between the tsunami energy and the natural modes of basin oscillation enhancing tsunami wave amplitude in harbors through resonance, as shown in some historical events in the Mediterranean Sea and elsewhere. This research is a contribution to the EU-FP7 tsunami research project ASTARTE (Assessment, Strategy And Risk Reduction for Tsunamis in Europe), grant agreement no: 603839, 2013-10-30.