



Tsunami simulations for historical and plausible mega-thrust events originating in the Eastern Mediterranean Sea

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Tsunamis have been reported at rates of one to two per year in the Mediterranean Sea, on average, over the past 2000 years (Ambraseys and Synolakis, 2010). However, quantification of tsunami hazards in the Eastern Mediterranean Sea remains difficult, as large events are infrequent. Simulations were performed for a series of seismic events originating along the Eastern Hellenic Arc and Western Cyprian Arc. The locations and source characteristics represent plausible mega-thrust events similar to historical events along the Hellenic Arc, including the 365 AD and 1303 AD events. Sensitivity simulations were performed to address uncertainty in the location and source characteristics of the 1303 AD event, and in consideration of potential future events originating along the Eastern Hellenic Arc. Sensitivity simulations were also performed for events originating along the Western Cyprian Arc. The hydrodynamic simulations used a series of codes known as the Method of Splitting Tsunami (MOST) (Titov and Synolakis, 1998). Reported results include wave propagation in the Eastern Mediterranean and tsunami inundation near Alexandria, Egypt, and for neighboring coastlines. References: Ambraseys, N. and C.E. Synolakis (2010), Tsunami Catalogs for the Eastern Mediterranean, Revisited, *Journal of Earthquake Engineering* 14(3): 309-330; and Titov V.V. and C.E. Synolakis (1998), 'Numerical modeling of tidal wave runup,' *J. Waterw. Port Coast. Ocean Eng.* 124(4): 157–171.