



Hydro- and morphodynamic tsunami simulations for the Ambrakian Gulf (Greece) and comparison with geoscientific field traces

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The Ambrakian Gulf is a marine inlet of the Ionian Sea in north-western Greece, covering an approximate area of 500 km². Historical accounts as well as sedimentary and geomorphological traces document repeated tsunami influence on the area during the past millennia, as is the case for the entire west coast of Greece. Vibracore and geoelectrical data allow an approximate reconstruction of tsunami inundation dynamics in the gulf including inland penetration, run-up heights and other hydrodynamic characteristics.

Based on a hydro- and morphodynamic numerical model, several tsunami scenarios were calculated for the study area in high resolution. The numerical model takes account of different wave boundary conditions and morphodynamic processes. This approach allows a direct comparison and calibration of the model with vibracore and geoelectrical field data. Our results show several plausible scenarios for a tsunami-related flooding of the gulf. Regarding the frequency of past tsunami events and their spatial dimensions indicated by both field and simulation data, a significant tsunami hazard has to be derived for the Ambrakian Gulf, including Aktio Headland, the international airport and the city of Preveza.