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## Prediction and evaluation of nonlinear site response with potentially liquefiable layers in the area of Nafplion (Peloponnesus, Greece) for a repeat of historical earthquakes

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**Abstract.** We examine the possible non-linear behaviour of potentially liquefiable layers at selected sites located within the expansion area of the town of Nafplion, East Peloponnese, Greece. Input motion is computed for three scenario earthquakes, selected on the basis of historical seismicity data, using a stochastic strong ground motion simulation technique, which takes into account the finite dimensions of the earthquake sources. Site-specific ground acceleration synthetics and soil profiles are then used to evaluate the liquefaction potential at the sites of interest. The activation scenario of the Iria fault, which is the closest one to Nafplion ( $M=6.4$ ), is found to be the most hazardous in terms of liquefaction initiation. In this scenario almost all the examined sites exhibit liquefaction features at depths of 6–12 m. For scenario earthquakes at two more distant seismic sources (Epidaurus fault –  $M6.3$ ; Xylokastro fault –  $M6.7$ ) strong ground motion amplification phenomena by the shallow soft soil layer are expected to be observed.

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