

## Evaluation of the tsunami hazard for eastern Hispaniola and western Puerto Rico in the Caribbean Sea Region

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**Abstract.** At least 32 potentially tsunamigenic faults have been identified in the Mona Passage, between the Caribbean islands of Hispaniola and Puerto Rico. Based on the estimated fault parameters, a numerical simulation has been made of the potential run-up elevations all along the western coast of Puerto Rico for each one of the faults, with the final objective of preparing coastal flood maps. Among the historical Caribbean tsunamis simulated we include the 1918 Puerto Rico tsunami, in which 42 persons died. This will also include a pilot study to estimate the tsunami run-up return period for the city of Aguadilla, the one most affected by the 1918 tsunami. Across the Mona Passage from western Puerto Rico lies the Dominican Republic, which is surrounded and cut by numerous active fault systems. Three of these fault systems are at least partially submarine and capable of producing large, tsunamigenic earthquakes. One of these fault systems is the one studied above for the tsunami inundation modeling of western Puerto Rico mentioned above. In this part of the study we investigate potentially tsunamigenic faults in the subduction zones lying to the north and south of the Dominican Republic, concentrating on the region near the 1946 Hispaniola earthquake and tsunami (the northern subduction zone). Thirteen reasonable variations in source parameters for the 1946 tsunami are evaluated in this study.

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