



Triggering Mechanisms of Tsunamis in the Gulf of Cadiz and the Alboran Sea: An Overview

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Juan-Tomás Vázquez, Gemma Ercilla, Belén Alonso, José Antonio Peláez, Desirée Palomino, Ricardo León, Patricia Bárcenas, David Casas, Ferran Estrada, M^a Carmen Fernández-Puga, Jesús Galindo-Zaldívar, Jesús Henares, Miguel Llorente, Olga Sánchez-Guillamón, Elia d'Acremont, Abdellah Ammar, Mimoun Chourak, Luis Miguel Fernández-Salas, Nieves López-González, and Sara Lafuerza

Abstract

The Gulf of Cadiz and the Alboran Sea are characterized by tectonic activity due to oblique convergence at the boundary between the Eurasian and Nubian plates. This activity has favored a variety of tsunamigenic sources: basically, seismogenic faults and submarine landslides. The main tsunamigenic faults in the Gulf of Cadiz would comprise the thrust systems of Gorringe Ridge, Marqués de Pombal, São Vicente Canyon, and Horseshoe faults with a high susceptibility; meanwhile in the Alboran Sea would be the thrust system of

the northern Alboran Ridge with high susceptibility, and the thrust systems of north Xauen and Adra margin, the transpressive segment of Al Idrissi fault, and the Yusuf-Habibas and Averroes faults, with moderate to high susceptibility. The areas with the greatest potential to generate tsunamigenic submarine landslides are in the Gulf of Cadiz, the São Vicente Canyon, Hironelle Seamount, and Gorringe Ridge; and in the Alboran Sea are the southern and northern flanks of Alboran Ridge. Both sources are likely to generate destructive tsunamis in the Gulf of Cadiz, given its history of bigger earthquakes (>7

J.-T. Vázquez (✉) · D. Palomino · P. Bárcenas · O. Sánchez-Guillamón · L. M. Fernández-Salas · N. López-González
Instituto Español de Oceanografía (IEO, CSIC),
Centro Oceanográfico de Málaga, 29640 Fuengirola,
Spain
e-mail: juantomas.vazquez@ieo.es

D. Palomino
e-mail: desiree.palomino@ieo.es

P. Bárcenas
e-mail: patricia.barcenas@ieo.es

O. Sánchez-Guillamón
e-mail: olga.sanchez@ieo.es

L. M. Fernández-Salas
e-mail: luismi.fernandez@ieo.es

N. López-González
e-mail: nieves.lopez@ieo.es

G. Ercilla · B. Alonso · D. Casas · F. Estrada
Instituto de Ciencias del Mar, ICM-CSIC, GMC,
Barcelona, Spain
e-mail: gemma@icm.csic.es

B. Alonso
e-mail: belen@icm.csic.es

D. Casas
e-mail: davidcasas@icm.csic.es