

# INFLUENCE OF SEAMOUNTS ON CONTROL AND TRIGGERING TSUNAMIS IN THE ALBORAN BASIN (CONTINENTAL MARGINS)

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**Background and Aims:** Submarine seamounts, so-called Banks, are frequently one of the main features of continental margins and represent areas of great interest for a wide range of marine disciplines. Their origin is often tectonic: uplifted basement blocks (Galicia and Le Danois Banks, northern Iberian margins), volcanism (Djibouti Banks, Alboran Sea) or main diapiric ridges (Portimao Bank, Gulf of Cadiz). Their flanks used to be sculpted by slope failures that may trigger secondary processes as tsunamis.

**Objective:** One of the project MONTERA objectives is the knowledge of the processes and mechanisms that control the stability and evolution of some of the main seamounts in the Alboran Basin. This allows developing tsunami models that could be applied to the design of infrastructures offshore and emergency plans both at Iberia and Africa onshore.

**Methods:** The Alboran seamounts have been studied by a multidisciplinary approach consisting out of multibeam echosounders, high resolution seismic profiles and sediment sampling in order to characterize potential mass-movements and define morphometric parameters to be computed for determine their hazard potential.

**Results:** Slides, mass-flow deposits and turbidites have been characterized in the seafloor and subbottom sediment covering the Alboran seamounts. They are a consequence of the relief, shape of the seamounts and the influence of seismicity and active tectonic faults. The geological analysis of one of these mass-movement systems in the southern flank of the Alboran Ridge seamount has allowed modelling the triggering and propagation of a tsunami in this basin.

**Conclusions:** Seamounts are first-order features in the Alboran Sea. The sedimentary instability of their flanks, tectonically or gravitational induced, governs the formation of mass-movement systems that can occasionally trigger tsunami waves. Seamounts distribution and morphology have been revealed as a main factor controlling the tsunami propagation throughout this basin.



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