



The tectono-sedimentary evolution of Minorca Island, its place in the geodynamic framework of the West Mediterranean

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The Minorca Island belongs to the Balearic Promontory, as part of the West Mediterranean. It is located at the junction between the Cenozoic Liguro-Provencal, Algerian Basins and Valencia Trough as well as at the intersection between key tectonic structures such as the Betic Front and the North Balearic Fault Zone.

Despite its critical position, the tectonic evolution of the Minorca Island remains poorly described. Therefore, this contribution aims to investigate the tectonic evolution of the Island and its integration in the geodynamics of the West Mediterranean.

Based on detailed onshore field observations and cross-sections, combined with offshore seismic sections, this work presents a new interpretation of the Minorca Island. Onshore, two main tectonic events can be distinguished: 1) a pre-Upper Oligocene compressive event, sealed by Upper Oligocene-Lower Miocene sediments and 2) an Upper Oligocene-Lower Miocene extensional event. This general extension can be recognized and mapped offshore to the north. In contrast, no evidence for a Betic-related deformation has been documented in Minorca. These results enable us to propose that Minorca underwent a compressional deformation in relation with the Pyrenean orogeny. During the Upper Oligocene-Lower Miocene, extensional deformation led to a general southward tilting of the island interpreted as a rift shoulder uplift in relation with the North Balearic Fault Zone. Finally, these results are integrated at a larger-scale in the poly-phased tectonic evolution of Eastern Iberia.