



Mesozoic evolution of the Valencia trough: Implications for the understanding of the Western Mediterranean

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The Western Mediterranean records a multi-stage tectonic evolution characterized by a complex succession of rifting to compressive episodes during the Cenozoic. The Valencia trough was formed in this geodynamic framework and is classically interpreted as an aborted Tertiary rift related to back-arc extension. Notably, the Tertiary rifting is superimposed to the Jurassic opening of the Tethys basin, the early Cretaceous opening of the Bay of Biscay-Pyrenees basins and the late Cretaceous-early Tertiary inversion of these basins (e.g. Iberian range, Catalan Coastal range).

Since the last twenty years, many studies contributed to the understanding of the Tertiary history of this area, whereas the pre-Tertiary evolution of the Valencia trough remains poorly investigated. Therefore, we initiated a research project in the Valencia trough benefiting from the acquisition of high quality seismic surveys allowing a better imaging of the Mesozoic sequences.

This PhD project aims to understand the mechanisms and the role of structural inheritance that controlled the evolution of the Valencia trough and its impact on the sedimentary infilling since the Mesozoic. The relation between the sedimentary infilling, subsidence and crustal thinning mechanisms during the Cenozoic are investigated aiming to unravel critical information on rifting processes.

This study will be based on correlations between onshore and offshore observations. Structural and stratigraphic evolution will be defined on land and compared with seismic sections and well data at sea. Eventually, these data will enable us to propose coherent land-sea interpretations of the area, providing a better understanding of the tectono-stratigraphic context. Our poster show preliminary results obtained from fieldwork on the western margin of the Valencia trough coupled with seismic interpretations. Eventually, results of this study may lead to better constrain the kinematic reconstruction of the western Mediterranean spanning from the Mesozoic to Early Miocene.