

INTERACTION BETWEEN PRE-SALT RELIEFS AND COVER DEFORMATION ON THE WESTERN MEDITERRANEAN SALT-BEARING PASSIVE MARGIN

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ABSTRACT

The Liguro-Provençal Basin (Western Mediterranean) includes three evaporitic units deposited during the Messinian salinity crisis (upper Miocene). From this, the intermediate or mobile unit formed by halite, controlled gravitational gliding of the margin as well as the three domain structural zonation of this salt-bearing passive margin, characterized by upslope extension, downslope contraction and the basinward translation of the cover in between. Nevertheless, in some parts of the basin this architecture is modified by pre-salt reliefs attributed to seamounts. These reliefs control in addition salt flow and the deformation of supra-salt cover.

Using a recently reprocessed 2D seismic dataset, this master project aims to characterize the seamounts geometry, and orientation of these, as well as to understand their interaction with cover deformation at the Liguro-Provençal Basin. To do it, we present the interpretation of several key seismic lines, depth structural maps and thickness maps of the main interpreted horizons.

These structural maps show how the height, the location and the orientation of the seamounts are the main control factors of cover deformation in the south-west of the study area. They act a barrier disrupting the salt flow, and modify the margin zonation with two new extensional / contractional sub-systems, up and down of the relief. In addition, in terms of the oil system of the Western Mediterranean the set of structures develop in the cover around the seamounts should be taking into account as a possible traps on the petroleum system of this margin.