

Geometry and structural evolution of Lorbeus diapir, northwestern Tunisia: polyphase diapirism of the North African inverted passive margin

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Abstract

Detailed geologic mapping, structural analysis, field cross-sections, new dating based on planktonic foraminifera, in addition to gravity signature of Lorbeus diapir, are used to characterize polyphase salt diapirism. This study highlights the role of inherited faulting, which controls and influences the piercement efficiency and the style and geometry of the diapir; and also the localization of evaporite early ascent displaying diapiric growth during extension. Salt was extruded along the graben axis developed within extensional regional early Cretaceous tectonic associated with the North African passive margin evolution. Geologic data highlight reactive diapirism during Albian time (most extreme extension period) and passive diapirism during the late Cretaceous post-rift stage. Northeastern Maghreb salt province gives evidences that contractional deformations are not associated with significant diapirism. During shortening, the initial major graben deforms as complex anticlines where diapirs are squeezed and pinched from their feeding.