

Theme 18: The signature of the Messinian salinity crisis in North Africa

The Messinian Salinity Crisis in a Mediterranean hydrocarbon exploration perspective

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The distinction between marginal and central Mediterranean basins has constituted a crucial advance in the knowledge of the scenario of the Messinian Salinity Crisis, both from the viewpoints of paleogeographic and factual reconstructions within an accurate chronostratigraphic frame. The evidence around the Mediterranean Basin and adjacent basins (Paratethys) of fluvial canyons cut during the peak of the Messinian Salinity Crisis allowed to point out thick clastic deposits within the Mediterranean central basins as a consequence of the sea-level drawdown (ca. 1500 m) prior to the deposition of evaporites (including halite) during the earliest phase of reflooding by Atlantic waters.

These outstanding variations in sea level resulted in important paleogeographic changes such as intra-basin disconnections-connections, lake or river captures, tectonic responses, etc. which controlled transport and location of deposition of coarse sediments.

In marginal areas, the development of Zanclean Gilbert-type fan deltas is a direct consequence of the huge changes in sea level. Their related reference surfaces (Messinian Erosional Surface, marine-continental transition, abandonment surface) are useful for quantifying vertical tectonic movements.

The resulting integrated scenario of the Messinian Salinity Crisis evidences common features to the Mediterranean region *sensu lato* but emphasizes regional differences due to geodynamic and paleogeographic specificities.