

Salt Tectonics Along the Atlantic Margin of North West Africa (Morocco and Mauritania)

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ABSTRACT

The salt basins of Morocco and Mauritania were developed on the NW African margin of the Central Atlantic. The age of the salt in Morocco is Upper Triassic to Liassic in age as Central Atlantic Magmatic Province (CAMP) basalts can be found within it. The age of the Mauritanian salt is poorly constrained but it is considered analogous to that of the salt found in Morocco. The salt in both basins deposited during the syn-rift, or more specifically, the syn-stretching stage of continental rifting between the African and North American plates, it therefore has a patchy, discontinuous original distribution in fault-controlled extensional troughs. The map-view distribution of the large variety of allochthonous salt tectonic features is interpreted to broadly reflect the pattern of the underlying extensional troughs. Whereas the much larger Moroccan salt basin has 200+ km wide segments extending even onshore, the smaller offshore Mauritanian salt basin has only an average 50 km width in a dip direction. Assuming a system of individual troughs in the proximal part of the syn-stretching margin, the present-day distribution of the salt diapirs, tongues and sheets may correspond to only a few extensional depocenters in Mauritania. As most of the allochthonous salt features are detached from their feeders, the average thickness of the original pre-kinematic salt is estimated to average no more than a few hundred meters over the entire area of the salt basin. A major difference between the Moroccan and Mauritanian salt basins is the role the salt plays in providing regional décollement levels for thrust fold belt segments during the Cenozoic inversion of the margin associated with the Atlas mountain building. With the Miocene to Recent shortening in Morocco the resulting overall pattern of salt tectonics is more complex in Morocco than in Mauritania.