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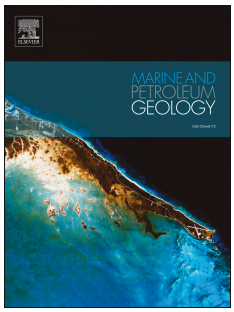

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ACCEPTED MANUSCRIPT

Diagenesis in salt dome roof strata: barite - calcite assemblage in Jebel Madar, Oman

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Abstract

Halokinesis causes a dynamic structural evolution with the development of faults and fractures, which can act as either preferential fluid pathways or barriers. Reconstructing reactive fluid flow in salt dome settings remains a challenge. This contribution presents for the first time a spatial distribution map of diagenetic phases in a salt dome in northern Oman. Our study establishes a clear link between structural evolution and fluid flow leading to the formation of diagenetic products (barite and calcite) in the salt dome roof strata. Extensive formation of diagenetic products occurs along NNE-SSW to NE-SW faults and fractures, which initiated during the Santonian (Late Cretaceous) and were reactivated in the Miocene, but not along the E-W fault, which was generated during Early Paleocene time. We propose that the diagenetic products formed by mixing of a warm (100ºC) saline (17 wt%

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