

Influence of Paleotopography as a Depositional Control on Late Cenozoic Carbonate Reservoir Analogs in the Cabo de Gata Region, Southeast Spain

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ABSTRACT

The Cabo de Gata region of southeast Spain provides excellent three-dimensional outcrops and preserves late Miocene-Pliocene-Pleistocene paleotopography. This study will test the hypothesis that paleo-substrate slope is a fundamental control on carbonate facies distribution and this critical slope of sediment bypass is predicted to depend on facies type: photozoan, heterozoan, or oolite/microbialite/reef. Paleogeographic reconstructions and a three-dimensional, seismically resolvable Petrel model will be produced and used to determine the control of paleoslope and paleogeography on facies distribution.

The results of this study will provide a comprehensive understanding of how evolving paleotopography and paleogeography affect sequence development and facies distribution of a variety of carbonate systems. The results can be applied to better understand the evolution of similar heterozoan, photozoan, and microbial/oolite systems in the rock record and inform more accurate subsurface prediction of reservoir quality in similar Cenozoic carbonates.