

3D model of a km-scale outcrop analogue of fractured hydrocarbon reservoirs: the Gozo Island

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Outcrop analogues have an important role in hydrocarbon exploration and reservoir characterization because they can help filling the gap between seismic and borehole scale. In this work, we present results from our project in the Gozo Island (Maltese Archipelago). Here, a Late Oligocene-Early Messinian carbonatic sequence, composed by different types of carbonates, was affected by two main extensional tectonic events leading to the formation of a complex fracture pattern: i) E-W extension during the Aquitanian ii) N-S extension from the Middle Miocene onwards. We have reconstructed a 3D geological model covering all the Gozo Island (15 x 8 km) using detailed geological maps and borehole data. The geological model has been populated with data regarding the distribution of fracture networks (from photogrammetric DOMs), mechanical stratigraphy and petrophysics using different geostatistical approaches.