Reservoir Properties and 3D Geological Modeling of Carbonates Deposits: Outcrop Analogue Study in Morro Do Chaves Formation, Sergipe-Alagoas Basin

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Abstract

The Permo-porosity analysis of carbonate rocks formed by accumulated shells (coquinas) is important to understanding the pre-salt oil reservoirs. The work described here corresponds to the study in "coquinas" of the Morro do Chaves Formation, Lower Cretaceous, Sergipe-Alagoas Basin. These deposits have a low diversity of components, bivalve molluscs fragments and ostracods mainly, contains intraclasts of claystone, quartz grains, feldspars, mica and lithic fragments of metaquartzites. Five microfacies were defined: Grainstone / Rudstone of bivalve molluscs, Grain-Packstone / Rudstone of bivalve molluscs, Grainstone of bivalve molluscs, Pack-Grainstone / Rudstone bioclastic of bivalves with terrigenous and sandstone. The main types of porosity observed in these rocks described as grainstone / rudstone are moldic, vug, intergrain, intragrain and intraparticle with average porosity of 12.6%. Studies are being developed including sin-depositional and post-depositional (diagenetic) genetic aspects, including the taphonomic processes, for understanding the heterogeneous distribution of Permo-porous properties.