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Reservoir Characterization and Modeling of Gaviota Field

The Gaviota gas field is located 10 km off the northern coast of Spain and the structural top is located at approximately 2,500 m of depth; it was discovered in 1980 by the exploratory well Vizcaya B-1, which produced gas and condensate. It has been producing from 1986 to 1994, when it was considered depleted. In order to delay abandon, it was transformed into a Gas Storage Reservoir under contract with ENAGAS.

The following geological and geophysical study it is part of a project, which has undergone a new reservoir characterization in order to build up a model, and so analyze the technical and economical feasability of increasing the increase the Working Gas and consequently the production/injection rates.

Gaviota gas field is a fractured carbonate reservoir, with a structural trap (anticline). It has a long complex structural history, developed during the reactivation and reversal of older faults during the late Eocene-Oligocene. The source rock is Carboniferous, while the reservoir rock is Upper Cretaceous. Microporosity is the dominant kind of porosity in Gaviota Field, although we are dealing with a dual porosity model (facies and fracture related porosity), and permeability is mainly determined by fractures. The reservoir fluid is a low yield gas condensate with an initial condensate ratio of 23 bbl/MMscf.