



## Exploration History and Petroleum Plays of the Offshore Mexican Gulf: A Retrospective

Edward Smith and Jennifer Halliday

TGS

### ABSTRACT

This paper provides insights to the exploration history of the offshore Mexican Gulf, through the interpretation of key attributes from a number of exploration wells in the region. Interpretation based on well reports has been used to identify trends in historic exploration strategy, and an understanding of the geological factors that contribute to the success or failure of those plays. This retrospective study aims to offer new and updated insights in to the reasons for success or failure for differing plays.

Post-drill evaluation has been completed for several hundred wells to enable the assessment of the petroleum systems present in the region and associated risks. For each well our interpretation identifies key reasons for failure or success, and documents attributes related to the different reservoirs. These geological attributes include parameters such as trap type, reservoir quality, and fluids.

Understanding individual wells has great value; however, a feature of this study is the large number of wells that have been evaluated. Spatial analysis of geological attributes related to the petroleum systems provide broader play related insights. For example, the ability to map porosity variation within a stratigraphic unit highlights lateral variations in reservoir quality across the basin.

Geological understanding of a basin evolves with each well drilled. Given the long-established exploration activity offshore Mexico some of the operator conclusions documented in well reports are inconsistent with current geological models. Case histories will be presented to demonstrate the value of assessing an individual well against the regionally derived trends which provides an updated understanding of exploration risk.

Analysis of multiple attributes such as drilling date, trap type, and reservoir age demonstrates the evolution of exploration strategy. This, and other examples from the study, will be shared to provide an overview of the tested plays and exploration risks for the Mexican Gulf.