

Regional Fault Kinematics, Propagation, Growth and its Impact on Accommodation Space Distribution in the Columbus Basin, Trinidad

Tracy Gunness, Katrina Packer, and Randy Partap

BP Trinidad & Tobago

Abstract

The Columbus basin is a Plio-Pleistocene gravity driven extensional system superimposed upon a Miocene foredeep. The structural trends within the basin are a set of NW-SE trending regional and counter-regional fault systems and SW-NE trending anticlinal ridges. A main control on reservoir deposition is the accommodation space created by the regional growth faults. As a result the timing of these major faults controls, the main depo-centers through time and distribution of significantly thicker reservoir packages or expanded shelf sections. This study determines the evolutionary kinematics of the regional faults in the basin to understand variations in accommodation space. It uses a systematic approach based on observations of fault shape, growth packages and interpretation throw distributions through time. Previous interpretations implied a single timing for each regional fault, but our findings suggest that they were formed from the growth and linkage of several smaller faults each with a different timing. As such the main depo-centers in the basin also changed along the strike of these present day faults, and the basin evolution may be somewhat different from what was previously thought.