

# Basement-influenced Sedimentation in Tertiary Petroleum Systems around the Globe

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## ABSTRACT

This story was born in the South Atlantic margin basins, skipped along East Africa and progressed around SE Asia. We show examples in Tertiary sequences in basins (Congo Fan, Angola; Baram Delta, NW Borneo; Campos Basin, Brazil; Pearl River Mouth Basin, China; Rufiji Trough/Lamu Basin of Kenya/Tanzania; Niger Delta, Nigeria) where striking correlations were observed between geologic features that control sedimentation and signatures of multiple potential field attributes.

Working in a GIS environment enabled faster, more precise interpretations and digital presentation of results. Stacking hundreds of geo-referenced images from published experts on GETECH's multi-featured potential fields data allowed the reinterpretation, realignment and extrapolation of long-recognized features. Data signatures in map view yielded unexpected geologic inferences using simple tools and basic concepts.

The study began with reinterpreted extents of continental, oceanic and mixed crust to help investigate hydrocarbon maturation. However, the regional work revealed surprising correlations between gravity imagery and published reservoir and source distributions such as:

- inter-raft sediment pathways, post-salt depocentres and unconfined basin floor fans, Congo Fan
- basement control on Oligocene fans, bypass zones and source pod locations, Campos Basin
- correlations between gas hydrates, toe thrust belts and basement structure, Niger Delta
- hydrocarbon migration catchments offshore Kenya/Tanzania
- projections of base of slope/basin floor fans, offshore NW Borneo

- basement control of sediment pathways, fan locales, and extended source  
kitchens, Pearl River Mouth Basin

Our talk includes glimpses of each situation and attempts to relate cause-and-  
effect, largely attributed to continuing basement influence on deposition.