SAMBA - Seeing the African Influence on Brazilian Geology

William Dickson
DIGS
billd@digsgeo.com

Jeff Martin and Mark Odegard
GETECH

Just as the national music of Brazil has African roots, the sedimentary basins of the South Atlantic passive margin show many similarities. First we correlated published geological features to gravity and magnetic attributes. While mapping basin boundaries, we reinterpreted extents of continental, oceanic and proto-oceanic crust with consequences for hydrocarbon maturation modeling. The initial investigations of crustal type and limits revealed surprising correlations between gravity imagery and reservoir and source distribution offshore Brazil and W Africa. Examples from the Campos & Lower Congo basins show sediment distribution controls by basement faulting and salt-lubricated translation respectively. Potential field signatures combined with knowledge of the underlying geology uncovered:

- inter-raft sediment pathways and depocentres in Congo and Kwanza Basins, Angola.
- predicted locales of unconfined basin floor fans offshore Angola.
- basement control on Oligocene fans and bypass zones and source pod locations in the Campos Basin, Brazil.

Working in a GIS environment enabled faster, more precise interpretations and digital presentation of results. Even long-recognized features not previously imaged in their entirety were reinterpreted, realigned and extrapolated, due to improved data coverages. The data signatures in map view drew unexpected geologic inferences using simple tools and basic concepts. That's a pleasant tune to any explorationist. Moreover, the music of Brazil has been exported and these techniques too can be applied elsewhere. We conclude with a regional example from SE Asia and a "Pearl" from China.