

Potential New Reservoir Targets Discovered in Channel and Canyon Features, Offshore Gabon

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Introduction

This paper looks at several exciting potential new channel and canyon systems ranging in age from Paleocene to Miocene observed in deep water, offshore Gabon.

Interpretation

The sedimentary basins of offshore Gabon is divided into three major stratigraphic phases, or sedimentary megacycles: the pre-rift phase, the syn-rift phase and the post-rift or sag phase. All major regional horizons interpreted to date in the study belong to the post-rift stage, which are Aptian to Holocene in age. Several horizons have been interpreted including the Seabed, the Base Miocene Unconformity, Top Ozouri Formation, Top Cap Lopez Formation and the Top Ezanga Formation (Top Salt).

Canyons and Channels: Relevance and Origins

Neogene channels are a major target reservoir in the Niger and Congo deltas but have not yet been targeted in the Gabon offshore area. Two generations of canyon and channel incision and fill have been chosen for further investigation. The major canyons are linked to westward tilting in the Neogene caused by continued continental drift. The Miocene unconformity may form hydrocarbon traps and seals. Older Ozouri Formation channels occur within a unit deposited at a maximum sea level high during the late Paleocene. There is evidence for long established channels migrating across the continental slope and for stacked, cross-cutting channels. These are often associated with seismic bright spots. In this project we used Trace envelope, RMS/MaxAbs amplitude, Coherency and Spectral Decomposition as the best seismic attributes to analyse the data set.

Conclusions

We propose that the well developed canyon and channel systems identified in the Gabon offshore area can be considered a potential new reservoir target, analogous to channels already targeted in the Niger and Congo deltas. Preliminary prospectivity analysis of this area has already yielded a significant number of seismic anomalies. The next step is to have each of these anomalies classified, ranked and given the right reservoir characteristics and economics (risk), drilled.

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