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**The Distinctive Role of Relay Ramps in the Tectono-Stratigraphic and Thermal Evolution of a Transtensional Basin, Offshore Côte d'Ivoire**

This study has utilised three 3-D seismic data sets and well data from the Central Abidjan Basin, offshore Côte d'Ivoire to develop a basin model that identifies the key elements that have controlled the structural, stratigraphic and thermal evolution of a transtensional basin. The model incorporates the kinematical analysis of an Apto-Albian fault system coupled with reservoir seismic facies mapping, burial history modelling and 3-D structural restorations.

The Abidjan Margin is interpreted as a transtensional pull-apart basin that formed as a result of the break-up of equatorial Atlantic area along a belt of transform faults during the Lower Cretaceous. The basin is characterized by a series of offset structural highs at the Top Albian structural level (equivalent to the break-up unconformity) which define the majority of hydrocarbons discoveries to date (e.g. Espoir re-development and Baobab discovery). The study indicates that the en-echelon arrangement of the Albian structural highs is associated with the interaction of the normal fault block geometries and offsetting relay ramps. High resolution 3-D structural and stratigraphic analysis indicates that breaching of relay ramps has occurred and is associated with active canyon scouring which was then back-filled with sand.

The current work indicates that it is important to fully understand the temporal evolution of relay ramps because in the Central Abidjan Basin they; (1) often define the structural spill point of Albian Highs, (2) act to focus sand input into the deepwater Abidjan Basin, (3) provide footwall-hangingwall migration pathways for hydrocarbons.