

## **Geology and Petroleum System of the Cote d'Ivoire Sedimentary Basin**

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The Sedimentary Basin of Côte d'Ivoire is a passive margin located in the Western part of the Gulf of Guinea. Created with the favour of Ocean Atlantique opening at the Lower Cretaceous (106 million years) this basin is limited to the North by the transforming faults of St Paul and Romanche to the South.

The basin includes two parts, one terrestrial (Onshore) and another marine (Offshore).

The "Onshore" part accounts for only 2.5% of the one that lies on the territory the area of which is 8000 km<sup>2</sup>.

The "Offshore" part represents the major part of the basin and displays on more than 100 km broad. It is subdivided in two margins: the Margin of Abidjan to the East where we have important activities of exploration and production, and the Margin of San Pedro to the West where the geology is not known enough.

The opening of the basin was carried out in several phases which correspond to series of specific deposits:

Deposits of Albo-Aptian thick series of continental type (rifting phase);

Deposits of important sand-shale (turbiditic type?) in subaqueous environment, more or less eroded sequences, for upper Albian (marine phase);

"Deposit/erosion" under marine due to the uplifting, for Cenomanian to lower Senonian, marked by three major discordances: the post albian discordance, the discordance at the top of Cenomanian to Turonian and the discordance at the top of lower Senonian (phase of oceanisation). The sandy deposits associated with this phase are often impregnated with hydrocarbons;

Deposits of thick shale series for Maestrichtian to Miocene used as cover to the anterior formation.

The Albian traps are structural type or pseudo structural and the post Albian traps are generally stratigraphic. The reservoirs are sandy (post Albian traps) and fine sandstones (Albian traps) with limestone streaks cement pseudo-bedded with shale.

The sedimentary sequences from the Albian to the Senonian have generated hydrocarbons which often migrated along antithetic faults in an East-West direction before being trapped. Oil met in the basin seems to have three origins:

Marine (the Espoir, Panthère and Baobab Fields; the Bubale prospect);

Marine with lacustrine influences (the Belier and Kudu Fields); Lacustrine (the Lion Field).

Key words: Basin of the Côte d'Ivoire - passive margin – stratigraphic traps - structural traps – lagoon fault – Discordance.