

Hydrocarbon Source Rocks in the Deepwater of West Africa: Regional Distribution and Depositional Models

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Deposition of organic-rich strata in the West African offshore region can be subdivided into four individual genetic phases. (1) During the Early Cretaceous Atlantic pre- and syn-rift phase, lacustrine black shales were formed. (2) During the subsequent mid Cretaceous syn-rift and early drift phase, the juvenile Central Atlantic was characterized by restricted circulation that in combination with oceanic anoxic events led to deposition of high-quality source rocks. (3) The Late Cretaceous saw the development of a pronounced West African-wide oxygen minimum zone due to intense upwelling and high primary productivity, which resulted in deposition of kerogen type I/II organic-rich shales. (4) Mid Tertiary deltaic fan progradation was associated with the sedimentation of black shales with moderate organic contents of mixed marine/terrestrial type.