ORGANIC SEDIMENTATION IN THE EQUATORIAL ATLANTIC: EVOLUTION FROM CRETACEOUS TO LATE TERTIARY DEPOSITIONAL ENVIRONMENTS

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Late Albian to Pliocene high resolution records from ODP Site 959 (Cote d`Ivoire-Ghana Transform Margin) are used to reconstruct the development of organic sedimentation from transitional marine to hemipelagic depositional conditions.

Cretaceous black shale formation along the margin was intimately linked to the tectonic and oceanographic evolution of the Equatorial Gateway. Accumulation of hydrogen-rich shales started only after continental separation was far enough advanced to allow a permanent midwater exchange after the late Albian. Four periods of black shale formation are recorded, some correlated with the global oceanic anoxic events. These periods were characterized by increased carbon fluxes, induced by enhanced productivity and supply of terrestrial OM.

There is evidence for a middle to late Eocene high-productivity period off Ivory Coast/Ghana which led to the deposition of hydrogen-rich biosiliceous units. Remote forcing of high latitude climate on tropical organic sedimentation is indicated in Oligocene to upper Miocene diatomite-chalk interbeds. A stronger influence related to the evolution of African trades and upwelling in the Gulf of Guinea is recorded in latest Miocene-early Pliocene organic carbon records. In view of a strong tropical monsoon the onset of TOC cycles at about 5.6 Ma marks the initial establishment of upwelling cycles off West-Africa. Spectral analysis indicate a strong influence of high latitude climate, notably long before the onset of northern hemisphere glaciation.