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ABSTRACT

Palynomorph and palynofacies analysis have been performed on 34 cutting samples from the Late Devonian sediments of the Atiavi-1 well in the Keta Basin. Five (5) palynofacies associations linked to different depositional environments have been identified based on the kerogen content in the samples. Palynofacies types Pf A, Pf B and Pf E reflect deposition under mud-dominated oxic shelf conditions (distal shelf), characterized by kerogen type III >IV which is gas prone. Palynofacies type C (Pf C) and D (Pf D) reflect heterolithic oxic shelf (proximal) conditions and are also characterized by type III or IV kerogen.

The palynomorph associations (miospores, acritarchs and chitinozoans) indicate an offshore distal or outer shelf environment for the lower section (1490 m – 1244 m) with the upper sections (1244 m – 936 m) showing intermixing of land - derived elements (miospores, phytoclasts and cuticles) with minor amounts of acritarchs, which strongly suggests deposition in shallow marine/fluvio-deltaic environment. The abundance and diversity of spores is an indication of humid climatic condition which existed at the time of deposition.

Palynomorphs with marker species based mainly on miospores assemblages and some diagnostic chitinozoans and acritarchs association from the Atiavi-1 well indicate an age of upper lower Devonian (Emsian) to latest Devonian (Strunian).

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