

Eustatic Sea Level Changes and Dynamic Strategy of Stromatoporoids of Oulad Abbou and DKL1 Well of Middle Devonian (Western Meseta)

**Abdelmajid Ben Bouziane¹, Mohammed Laadila², Bouchra Cherradi³, AbdelhadiKaoukaya⁴,
Abdeslam El Kochri², and Atika Hilali⁴**

¹ Université Hassan II – Mohammedia. Faculté des sciences Ben M'Sik, Casablanca, département des sciences de la terre

² Université Mohammed V, Faculté des sciences, département des sciences de la terre, B.P. 1014, Agdal – Rabat

³ Office national des Hydrocarbures et des mines (O.N.H.Y.M.)

⁴ Université Hassan II, Faculté des sciences de Casablanca- Ain Chock

The analysis of Middle Devonian at the outcrops in Oulad Abbou location and in subsurface at DKL1 well, led to the better understanding of the carbonate platform at that time. The morphology of the substratum was favourable to installation and development of bank and bioherms rich on stromatoporoids, corals and other organisms; these highs are associated with the tilted blocs.

Carbonates deposits encountered in the DKL1 well and Oulad Abou show the lateral filling sequence in prograding platform. The carbonate platform evolved from open marine environment to subtidal environment characterized by deposition of biodetritral sediment. In this hydrodynamic context, the erosion of highs was very frequent, eroded bioclastic product were transported and are found at reef front area. Behind the crinoïds dunes and bioherms, a confined environment (lagoon) was developed and characterized by algae that which is intertidal to supratidal environment in origin.

Based on sedimentological and sequential studies, elementary sequences analysis, organisation and sedimentary evolution at Sidi Abdellah cross section have defined the environmental changes according to marine sea level variations. The patch reef show tree periods of carbonate build up: plant period, colonial period and colonization-diversification.

The first period is represented by prograding bank with transported bioclastic material above limestones rich on pelagic or/and planctonic organisms of open marine environment. The second period shows evolution from crinoids facies to build up facies rich on stromatoporoids. The installation of these build up is located on bioclastic slope but their evolution was stopped by hydrodynamic and bathymetric changes which is related to flowding phases. The last phase corresponds to bioherm rich on stromatoporoids and corals. Marine sea level was favourable to maximum production of carbonate.

Key words: Western Meseta, Middle Devonian, carbonate platform, sedimentary evolution.