Genetic Sequences and Correlations of the Lower Paleozoïc Series in the Illizi Basin and Tassilis Outcrops. Propositions of Geodynamic Evolution and Comparisons with the Ahnet-Timimoun Basin (Algerian Sahara)

Khemissi Zellouf[1] and Hamid Aït Salem[2]
[1] Université de Boumerdès, Département Gisement, Boumerdès, 35000, Algeria
[2] Sonatrach/CRD , avenue du 1er Novembre, Boumerdès, 35000, Algeria

Lower paleozoïc clastic sequences of the Eastern Algerian Sahara and adjoining regions, have been investigated mainly since1950's in conjunction with hydrocarbon exploration. However, most of the data collected by oil companies have remained confidential.

This paper aims to give facies and environments evolutions in order to able one to define correlatable surfaces and make correlations at high resolution. For this purpose the faciologic stratigraphy based on the analysis and the succession of facies is applied.

The Cambro-ordovician facies of this region show a progression from the continent to platform rather than platform to basin; that is the reason why the faciological stratigraphy (Homewood and al., 1992) is applied.

The genetic units, corresponding to third order sequences, are limited at their bases and tops by Maximum Flooding Surfaces (MFS); these surfaces mark the time of the reverse of the tendency between retrogradation and progradation; therefore, they are excellent surfaces and easy to identify. We have evidenced third order cycles, limited by key surfaces (MFS) which have been dated by biostratigraphy. Correlations have been done between sedimentary series in Tassilis outcrops and wells in the Illizi and Ahnet-Timimoun basins.

New stratigraphic oil traps and argillaceous seal rocks have been found.

A geodynamic interpretation is proposed and a comparison with the Ahnet-Timimoun Basin is done.

Key words: Lower Paleozoïc, Genetic Sequences, Correlations, Stratigraphic traps, Geodynamic, Illizi, Ahnet-Timimoun Basins, Sahara, Algeria.