

High Resolution Sequence Stratigraphy Genetic Sequences of Fluvial Triassic Formation Evidenced by the Clay Fraction Study (Oued Mya Basin, Central Sahara, Algeria)

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The triassic shale sandstone formation of Oued mya basin, is about 200 meters thick, made of two series of shale sandstone separated by a stratum of volcanic deposits. Nine wells of Hassi R'mel and Haoud Berkaoui fields enabled the collection samples from every twenty five centimeters at all sand and clay levels of the higher series and the lower series. The clay fraction has been studied with XR diffractometer and showed the following results:

- The main existing clay minerals are illite, chlorite and mixed layers ;
- The intensity of Illite peak (I001) and chlorite peak (I002) are very variable;
- The variation of peak does not occur at random. Thus, the intensity of the peak (I001) of Illite decreases from the bottom to the top in a metric level or profile can be observed. Indeed, it can be seen that at the bottom of the profile, Illite shows a high intensity (I001) peak, with a good cristallinity, and as one goes up in the profile, i.e. a decrease in the depth, the peak intensity becomes weaker and sometimes, the nothing can be seen on the diffractogramm. This decrease in the intensity of the (I001) peak from the bottom to the top of the profil is spectacular. The loss in the intensity is neither due to the decrease in the size of grains nor to the less good cristalline organisation, and nor to the quality of crystalised grains. This phenomenon is observed both in the clay fraction of and sandy and shaly samples. In the higher part on a number of profiles, the exposed substance does not give any reflexion, whatever the studied angular field is. This proves that the substance is amorphous to XR, thus showing a high weathering of the clay fraction. The decreasing peak intensity is repeated through the same profile from the bottom to the top of the triassic formation. This enables to define

sections in the sequences called genetic sequences. Their thickness varies from one meter to dozen of meters.