Sedimentology Diagenesis Stratigraphy and Paleontology of the Lower Cretaceous Rock Sequence in Lebanon

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The Neocomian - Barremian “Grès de Base” or Chouf Formation, the only main Formation to be properly studied in this time period in the region, interacts with two improperly studied underplaying and overlaying carbonate strata.

This study also aims to provide a detailed stratigraphic account of the entire Lower Cretaceous in Lebanon, by state of the art petrographic and mineralogic analyses of these rocks. It was demonstrated that the Chouf Formation was deposited both aquatic and eolian environments systems. Still to be evidenced, are the strata cyclicity in the sandstone strata as well as the presence of shallow water carbonates in the Lower Cretaceous.

Lithostratigraphic and petrographic analyses revealed that the Neocomian-Barremian outcrops include distinct aquatic and eolian facies. These petrographic analyses described the organic rich layers in the aquatic dominated sandstone facies, but should also determine those found in the Limestones

In the clastic beds, the kerogens resulted in corrosion and dissolution of the quartz grains increasing the porosity/ permeability of the bulk rocks upon initial hydrocarbon migration and later on the telogenic flushing with meteoric waters. A similar case should be observed for the preserved bitumens in the carbonates.

Thus, this will enable us to study also the petroleum prospects of the Lower Cretaceous rock sequence as well as providing a proper sequence stratigraphic anlaysis of this period.