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Mid Cretaceous Stratigraphy, Facies and Carbon-Isotope Curves of Northwest-Qatar

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SUMMARY

New Cenomanian to Coniacian (Mauddud, Mishrif, Laffan) facies and isotope data will of NW-Qatar be discussed and placed into a regional depositional and time framework.

The mid Cretaceous (Albian to Coniacian) stratigraphy and facies development of the Mauddud, Mishrif and Laffan formations of northwest Qatar are discussed and placed into a southern Gulf regional framework.

Core, cutting and thin section analysis show the studied area was located at the transition zone between a sand/clay-contaminated carbonate platform interior sub-basin in the southwest (Saudi Arabia and Bahrain) and a platform interior setting in the east (northeast to eastern Qatar). At this transition, the Qatar Arch served as a barrier for the terrigenous detrital influx coming from the southwest. Further to the east, the platform interior facies is bounded by more common rudist shoals on the platform-margin towards the Shilaif Basin in the United Arab Emirates.

A simple analysis of spectral gamma-ray curves is being used to differentiate between authigenic Uranium and detrital Uranium to locate sections with increased terrigenous clay input. The results impact the sequence interpretation and general depositional model and highlight the transgressive nature of many of the carbonate beds in the mixed ramps.

Three medium-scale sequences are recognized in the studied interval, of which the lower two (Mauddud and Lower Mishrif sensu Qatar stratigraphy) are bounded by important exposure surfaces and the third is truncated by the top Upper Mishrif (sensu Qatar stratigraphy) unconformity below the overlying Laffan shales.

The modified mid Cretaceous depositional and sequence model will be discussed and compared to mid Cretaceous oceanic events following newly obtained carbon-isotope curves and biostratigraphic data.