

Tectono-Eustatic Sequence Interpretation — A Key for Interpreting Mid-to-Major Palaeoenvironmental Changes in the Mexico-Caribbean Area During the Late Jurassic and Earliest Cretaceous

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Jurassic and Cretaceous rocks in the Mexico-Caribbean area have been reported since the 19th Century. Significant progress was made during the second half of the 20th Century. Updating stratigraphy with identification of major geological events recorded in Upper Jurassic to lowermost Cretaceous sections has been recently revisited (Olóriz et al., 2003; Cobiella & Olóriz in litt.; and references therein).

Major-to-mid, geodynamically forced, episodes of paleoenvironmental change can be selected for recognition of Tectono-Eustatic Sequences (TES). In the Mexico-Caribbean area and around the Gulf of Mexico Basin, TES interpretation provides insights for interpreting relevant phases of the geological history during the Late Jurassic and the earliest Cretaceous. Higher variability in 3rd-TES versus comparative persistence in 2nd-TES across the studied area accords with the expected stratigraphical hierarchy, and shows differential records of environmental changes in response to geodynamic forcing. Regional differences increased from the latest Oxfordian-to-earliest Kimmeridgian to the Early-Middle Berriasian.

On this basis and in terms of 3rd-TES (>1 to 8Ma) and 2nd- TES (>10 to <20Ma), the present contribution provides the first interpretation of both the so-called "Upper Jurassic Supercycle" in northern Mexico and the northern Gulf Rim, and the "Carbonate Cycle" southwards in the north American palaeomargin involving Cuban sections and palaeogeographically related areas. In addition, the correlation potential of interpreted TES is evaluated across the Mexico-Caribbean and Gulf areas, as well as with respect to the distant western Tethys.

References

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