



Persistence of Carbonate Platform Environments in Central Mexico during the Oceanic Anoxic Event 2: impact of the Caribbean Plateau?

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The Cenomanian-Turonian Oceanic Anoxic Event 2 is described as an interruption of normal pelagic sediment deposition by several distinct intervals of widespread oceanic anoxia (Schlanger & Jenkyns, 1976; Jenkyns, 1980; Arthur et al., 1990) characterized by black shales deposition coinciding with a positive shift in carbon isotope excursion. Some authors show a relationship between OAEs and massive volcanic events associated with the emplacement of large igneous provinces (LIPs) and sea floor spreading at mid-ocean ridges (Kuroda et al., 2007; Snow et al., 2005). High metal abundance anomalies recorded in pelagic sections (e.g. Pueblo, Colorado) coincide with the massive volcanism that built the Caribbean plateau (around 93-94 Ma), associated with the onset of OAE 2 (Snow et al., 2005). Mort et al., (2007) demonstrate that the onset of the OAE 2 was triggered by a short-lived but significant increase in phosphorus burial. The bottom waters became anoxic and switched from being a P sink to a P source, sustaining the productivity in a positive feedback loop. However, the behaviour of phosphorus and trace metals at larger scale, in different paleogeography and paleodepth is still poorly known. The Axaxacualco and Baranca el Cañon sections, located at the Guerrero-Morelos carbonate platform in southern Mexico exhibit a fully correlateable $\delta^{13}\text{C}$ curves. In the distal part of the carbonate platform at Axaxacualco, the maximum $\delta^{13}\text{C}$ positive excursion coincides with oligotrophic carbonate platform environments supported by low concentrations in P and characterized by abundant and diversified benthic microfauna and rudists. The impact of OAE appears may be more significant in the proximal part of the carbonate platform at Barranca, characterized by the deposition of thick laminated microbialites indicative of mesotrophic conditions. The Morelos Carbonate platform with oligotrophic to mesotrophic conditions was persistent throughout the entire OAE2 in Central Mexico despite the proximity of the Caribbean Plateau. The definitive carbonate platform drowning, marked by the deposition of black shales and turbidites, occurs only in the lower Turonian (*P. flexuosum*), well above the end of the $\delta^{13}\text{C}$ shift.

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