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TITULO DE LA PONENCIA

The Cenomanian-Turonian Oceanic Anoxic Event 2 in Colombia revisited

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ÁREA TEMÁTICA

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PALABRAS CLAVE

anoxia, maximum flooding surface, faunal turnover, euxinia

CONTENIDO DEL RESUMEN

Tomas Villamil described the Cenomanian-Turonian boundary and the Oceanic Anoxic Event 2 (OAE2) in Colombia thirty years ago. Since the publication of his seminal work, few studies examined this transition in greater depth. Here we report new geologic data from sections located in the Putumayo (PB), Upper Magdalena (UMV), Middle Magdalena (MMV), and Eastern Cordillera (EC) basins. Facies during the Cenomanian are variable in Colombia and correspond to siliciclastic rocks or thick-bedded bioclastic limestones. The stratigraphic relationship between the Cenomanian and the Albian is also variable in the different basins. Cenomanian rocks of the PB and UMV are in concordant contact with Albian limestones. The Cenomanian of the MMV, on the other hand, lies unconformably on siliceous shales of the Albian Simití

Formation. Biostratigraphic dating of this surface is consistent with a hiatus that spans at least 11 Ma from the middle Albian to the middle Cenomanian. In the EC, Albian shales and sandstones of the San Gil Superior Formation are conformably underlying the Cenomanian bioclastic limestones of the Churuvita Formation. The Cenomanian was deposited in different depositional environments but on well-oxygenated sediment-water interfaces. In contrast, the uppermost Cenomanian recorded at the transition between the Bambuca Shale and the Lomagorda formations in the UMV and PB, the El Salto and Salada formations in the MMV, and the Churuvita and San Rafael formations in the EC, evidenced strong reducing conditions (anoxia and euxinia) that probably extended into the upper part of the water column as it is shown by the absence of macro and microfossils in this stratigraphic interval and the high concentrations of redox-sensitive trace elements and framboidal pyrite. This interval also corresponds with the Cenomanian-Turonian transition, the plateau phase of the OAE2, and a turnover of ammonites and nannoplankton. This interval is interpreted to represent the maximum flooding surface of the early Turonian and is consistent with previous works suggesting so. Finally, the early Turonian means improved oxygenation at the upper part of the water column, while the sediment-water interface remained anoxic. Future research directions should be focused on reconstructing the redox conditions of both the upper and bottom parts of the water column using geochemical and isotopic proxies and on investigating the paleogeographic distribution of Cretaceous rocks aiming to determine the areas where natural processes exerted control on carbon sequestration and thus on the Cretaceous carbon cycle.