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Carbonate Production, Relative Sea Level Fluctuations and Slope Geometry: Case Histories from the Middle-Triassic of the Italian Dolomites

The understanding of carbonate platform reservoirs can be enhanced through the analysis of outcropping counterparts, such as the ones provided by the study platforms (Cernera and Latemàr), particularly rich in both marine cements and microbial boundstones. The birth of both coeval platforms was matched with an anoxic event and with the deposition of a potential source horizon, rich in marine organic matter. The evolution of the short lived Cernera Platform was controlled by a very fast subsidence, badly compensated by its aggrading evolution. The lengthening slopes rapidly steeped up, while the cementation intensity increased. The carbonate production was unable to support the fast platform volume increase and the slope deposits therefore became thinner and thinner, forcing the margin to retrograde; the platform eventually drowned and it was covered by condensed pelagic facies and deep water stromatolite-like structures. The Latemàr slope experienced a similar lengthening and steeping up evolution; this carbonate system however grew in a comparatively less subsiding area and it was therefore able to keep and eventually catch up the relative sea level increase. While the platform core shallowed from subtidal environments to cyclic emersions, in the adjacent slopes loose bioclastic and micritic sediments gave place to breccia rich in carbonate cements and microbial boundstones. The subsidence then slowed down considerably enabling the platform to laterally prograde, but no margin are presently preserved from this phase. Both platforms were then at least partially sealed by volcanic and terrigenous deposits and incompletely affected by a permeability enhancing dolomitization.