



Carbonate platform production and exportation potentials recorded by stratigraphic architectures and sediment composition of base-of-slope deposits (late Jurassic, central Apennines, Italy)

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Upper Jurassic carbonate successions of Lazio-Abruzzi and northern Campania-Molise (Matese) Apennines are compared to investigate how stratigraphic architectures and sediment composition of base-of-slope deposits are influenced by carbonate production and exportation changes, induced by relative sea level fluctuations, as recorded in the shallow water domain.

Sediment composition reveals that base-of-slope resedimented deposits derived from the nearby carbonate platform systems, and were supplied from two depositional environments: inner platform and reef margin. Trends in the thickness, grain size and proportion of resedimented deposits indicate that the exportation potential of these two sediment sources changes through time, and allow the base-of-slope record to be subdivided into middle-scale and large-scale cycles. Based on bio- and event-stratigraphy, the Lazio-Abruzzi base-of-slope cycles have been correlated and compared to the platform evolution of the northern Campania-Molise area, a nearby detached main carbonate bank, whose cyclic record was punctuated by emersion events.

Subaerial exposure-bounded cycles, and their correlation with base-of-slope cycles, indicate that relative sea level drove the platform sedimentary dynamics and acted as main driving factor for both shallow water and base-of-slope cycles formation.

Through intermittent platform floodings and emersions, relative sea level caused shallow water carbonate production fluctuations and changes in the amount and type of offshore exported sediment, as recorded by base-of-slope stratigraphic architectures and sediment composition of resedimented deposits.

The relationships between carbonate production and exportation potentials is interpreted as due to the combined effects of two superimposed orders of sea level changes, and to the role of the reef-margin source area in the total sediment exportation budget. This interference controlled the amount of sediment produced during the long-term platform accommodation, and influenced the sedimentary response of shorter relative sea level changes.