

Carnian outer continental shelf succession in the Budva Zone (Montenegro)

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Along the coastal site of the Budva Zone in Montenegro, the deposition of open-marine sediments started in the Middle Anisian (Late Pelsonian), time equivalent with the oceanic break-up of the Neo-Tethys. Shallow-water carbonates, open-marine limestones, radiolarites, bentonite horizons, volcanic resediments, and silicified mudstones to hemipelagic carbonate sequences in upsection position characterize in general the Middle Triassic sedimentation on the outer continental shelf. The paleoenvironmental evolution in the depositional setting was controlled by stratified volcanic activities and a related ocean-acidification. Shallow-water carbonate production on the mid continental shelf lasted from the latest Ladinian onwards. Hinterland influence and thickness of sediment deposition varies with the palaeogeographic position on the shelf.

In the Cordevolian, the studied open-marine succession in Canj consists of grey-reddish hemipelagic carbonates with stratified accumulations of halobiids. In this temporary very low-energetic environment shed mass transport deposits, whose clasts derived from the former horst complexes. A long-lasting submarine gap of the entire Julian to Tuvalian 1 is related to a very long lasting emergence of the Wetterstein Carbonate Platform. From the Tuvalian 2 onwards the continuing hemipelagic carbonatic sequence is characterized by an increasing energy level in the depositional environment that is reflected in unsorted accumulations of echinoids and halobiids, but also in a gradual oxygenating sediment colour. The shedding of the mass transport deposits lasted in repeating successions until the earliest Tuvalian 3, which corresponds with the time contemporaneous volcanic activity known in the eastern Mediterranean orogen. The clast spectra consist predominately of recycled Carnian sequences. An order of dissolution and recrystallization reactions in the lithifying breccia caused to a fermentative decomposition of the organic matter, metal sorption onto suspended particles, and to the formation of authigenic minerals. The latest Tuvalian 3 to earliest Lacinian 1 is nicely documented by conodonts and associated macrofossils as *Halobia* sp., *H. beyrichi* (Mojsisovics) and *H. styriaca* (Mojsisovics) (Cafiero and De Capoa Bonardi, 1980). From the Late Carnian onwards lasted on the shelf a normal-marine depositional environment with high sedimentation rates of grey hemipelagic carbonates.

This Carnian trend in the open-marine Hallstatt limestone succession can be directly correlated with other high resolution Hallstatt limestone successions, dated by means of conodonts in the e.g. Eastern Alps, Western Carpathians, Dinarides and Turkey. A deposition in an independent deep-water basin (Mirdita-Pindos) is not mirrored in the depositional characteristics or tectonostratigraphic events.

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REFERENCE

Cafiero, B., De Capoa Bonardi, P. 1980. Stratigraphy of the pelagic Triassic in the Budva-Kotor area (Crna-Gora, Montenegro Yugoslavia). *Bollettino della Societa Paleontologica Italiana* 19 (2), 179–204.