

Composite biostratigraphy and microfacies analysis of the Upper Jurassic – Lower Cretaceous carbonate platform to slope successions in Sivrihisar (Eskişehir) region (NW Turkey, Pontides): Remarks on the palaeogeographic evolution of the Western Sakarya Zone Carbonate Platform

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Two stratigraphical sections were measured along the Upper Jurassic – Lower Cretaceous carbonate successions exposed in a tectonic klippe of the Sakarya Zone (Pontides), north of Sivrihisar. According to the biozonation and microfacies types, two coeval but dissimilar rock successions, separated by a thrust fault, have been detected. These successions belong to different depositional belts of the Edremit-Bursa-Bilecik Carbonate Platform (EBBCP), western Sakarya Zone. The lower succession displays a slope to basin facies and consists of the Kimmeridgian – Berriasian Yosunlukbayırı Formation and the overlying Valanginian Soğukçam Limestone. Within these deposits the following biozones were defined: *Globuligerina oxfordiana* – *Mohlerina basiliensis* Zone (Kimmeridgian), *Saccocoma* Zone (Lower Tithonian), *Protopeneroplis ultragranulata* Zone (Upper Tithonian), *Crassicollaria* (massutiana subzone) Zone (uppermost Tithonian), *Calpionella* (alpina, Remaniella, elliptica subzones) Zone (Lower Berriasian), *Calpionellopsis* (simplex, oblonga subzones) Zone (Upper Berriasian) and *Calpionellites* (darderi subzone) Zone (Lower Valanginian). This succession is overthrust from north to south by another distinct succession characterized by the shallow marine carbonate facies of the Kimmeridgian Günören Formation. Within this unit *Labyrinthina mirabilis* – *Protopeneroplis striata* (Kimmeridgian) Zone is recognized.

A facies model is proposed for the Sivrihisar transect of the EBBCP for Kimmeridgian – Valanginian interval, based on the distribution of microfacies types. The toe-of-slope facies are characterized by peloidal-bioclastic packstone, mudstone-wackestone and calpionellid/ radiolarian wackestone–packstone comprising pelagic taxa (calpionellids, radiolaria, *Globochaete* sp., *Pithonella* sp., *Saccocoma* sp., calcareous dinocysts, aptychi, very rare planktonic foraminifera and nannoconids) and rare fossil groups transported from the carbonate platform (benthic foraminifera, microencrusters, worm tubes, bivalve, crinoid and echinoid fragments). These deposits represent the background pelagic deposition on the slope. The slope facies are mainly composed of bioclastic-peloidal/ bioclastic-intraclastic packstone, rudstone-grainstone, bioclastic-lithoclastic floatstone-rudstone and reflect generally the increase in the amount of platform derived material (benthic foraminifera, microencrusters, worm tubes, corals, sponges, bryozoa). The matrix of these coarse grained deposits also contains pelagic taxa (calpionellids, radiolaria, *Saccocoma* sp., *Globochaete* sp., *Pithonella* sp., aptychi). The slope facies are sometimes intercalated with the toe-of-slope type facies indicating quiescence periods. The shallow marine carbonate platform deposits are characterized by peloidal-intraclastic poorly washed grainstone with bioclasts, bioclastic mudstone-wackestone, intraclastic packstone-rudstone and contain several shallow marine fossils (benthic foraminifera, encrusters and rare echinoid, bivalve and coral fragments) without any pelagic taxa. These carbonates are interpreted as back-reef platform deposits that should not be far away from the platform margin due to the co-occurrence of *Protopeneroplis striata* and *Mohlerina basiliensis*, abundant in the shelf edge and reefal areas with the complex benthic foraminifera, *Labyrinthina mirabilis* common in lagoonal areas.

If the position of the studied sections with respect to the EBBCP is considered, the studied basin and slope facies should represent the southern platform margin and slope environments of this carbonate platform that faced an ocean to the south during the Jurassic-Cretaceous. The slope and basinal facies overthrust by the shallow marine deposits in a region situated to the south of the main İzmir-Ankara-Erzincan (İAE) suture suggests an important disruption and shortening of the EBBCP margin and slope deposits related to the closure of the İAE ocean.

