

SHALLOW – TO DEEP - MARINE CRETACEOUS PALAEOSETTING IN THE NORTH - WESTERN BLACK SEA ONSHORE AND OFFSHORE

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In the north-western Black Sea onshore of southern Romania, within the South Dobrogea region (part of the Moesian Platform bordering on the Black Sea in the east), the Cretaceous sequence is characterized predominantly by marine sedimentation. Several palaeosetting changes, from shallow – to deep-marine deposition, are indicated, based on a study of outcrops and boreholes, some of them located offshore. During the Early Cretaceous, the area was enclosed in a carbonate platform. The sediments of the Berriasian–lowermost Aptian interval are marly limestones, oosparites, sandy clays, limestones and reef buildups of patch-reef type, with rich macrofaunas, i.e., ammonites, bivalves and brachiopods (Avram et al. 1993). Very scarce assemblages of benthic foraminifera and nannofossils are also present. Within the Lower Cretaceous, a modification is marked by the transgressive Upper Valanginian, when a deepening event took place, expressed by the occurrence of marls, clays and limestones, containing calcareous nannofossils of Tethyan and Boreal origin (Melinte and Mutterlose 2001) and planktic foraminifera. In the Lower Aptian, a fluvial-lacustrine palaeoenvironment was observed in several outcrops largely exposed along the Danube-Black Sea Channel and in boreholes from onshore and offshore the north-western Black Sea. A coarse-grained channel deposition is present (pebblestones, sandstones), along with alluvial plain deposits, mainly claystones and sandstones with charophytes and ostracods (Avram et al. 1993; Stoica 1997). During the Cenomanian, a transgression took place, leading to the occurrence of marls, clays and glauconite-rich chalk. These facies, which frequently include bioturbated mudstone chalk, extending to the Maastrichtian, were interpreted to represent deep-water environmental conditions. The Cretaceous palaeosetting modification pointed out in the onshore and offshore north-western Black Sea mirrored the eustatic fluctuation of those times (Haq 2014) that led to palaeogeographical modifications. The effect of eustatic changes is modulated by eurybathic ones.

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THE MID-CRETACEOUS WESTERN INTERIOR SEAWAY: OCEAN GATEWAYS AND THE ONSET OF OCEANIC ANOXIC EVENT 2

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At sites across the US Western Interior Basin, abrupt changes in foraminiferal assemblages (bio-events), lithology and geochemical records have been widely recorded at or near the boundary between the Hartland Shale and Bridge Creek Limestone members of the Cretaceous Greenhorn Formation in Colorado (and their stratigraphical equivalents throughout the basin) (Eicher and Diner 1985; Leckie et al. 1998; Elderbak and Leckie 2016; Jones et al. 2019; Bryant et al. 2021). These regional changes coincide with global sea level rise and the onset of Oceanic Anoxic Event 2 (OAE 2) (Arthur and Sageman 2005; Elderbak and Leckie 2016; Jones et al. 2020). Here