Reconstruction of palaeoceanographic changes during the Upper Albian OAE 1d event in the submerged Tatric Ridge, Central Western Carpathians

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Sea-level rise during Albian (HAQ, 2014) and tectonic movements in the Alpine–Carpathian microcontinent at the edge of the Penninic Ocean (Mediterranean Tethys) caused shallow-water carbonate sedimentation at intrabasinal Tatric Ridge during the *Parathalmanninella appenninica* Zone (late Albian). It was characterized by the deposition of echinoderm-foraminiferal limestones at outer neritic depths (BĄK, 2015), terminated by the formation of hardgrounds, phosphate pisolites and microstromatolites (KRAJEWSKI, 1981), replaced by hemipelagic dark-grey marls. These sediments belong to the youngest part of the High-Tatric Unit, outcropped in the Polish part of the Tatra Mountains, Central Western Carpathians.

Evaluation of microfacies, benthic foraminifers, calcareous dincysts, palynology, TOC, organic biomarkers, and carbon- and oxygen stable-isotope data enable a characterization of palaeocenographic changes related to the early and late phase of the Oceanic Anoxic Event 1d and the period immediately following. Successive sea-level rises and, most probably, climatic changes at that time induced stepwise changes in basin circulation leading to changes in sedimentation type at intrabasinal ridges (BĄK et al., 2016). Marine and land-derived organic matter (OM) was strongly degraded under the oxic conditions that pertained during the whole late Albian. High productivity in the surface water, induced by winddriven coastal upwelling, caused the particulate organic carbon fluxes across the unstratified water column to the sea bottom in the oldest phase of the OAE1d. Gradual sea-level rise associated with subsidence of the Tatric area and changes in wind direction from landward to seaward (downwelling) was characteristic of the final phase of the OAE1d. Organic matter accumulated at that time came from land wetlands. Their abundance stimulated the growth of phytoplankton, the consequent zooplankton activity, and the enhanced particulate organic carbon deposition. Bacterial decomposition of the OM, dominated by vascular plant remnants, spores of lake-derived green algae and particles of freshwater blue algae lead to decreasing oxygen concentrations in the lower part of the water, caused seasonal anoxia and water column stratification. A further change in the wind systems conjugated with changes in superficial water currents (HAY, 2008) caused the breakdown of the water stratification and renewal of the upwelling regime in the Tatric area.

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