

Resedimented calcareous material as an environmental expression of marginal parts of the Carpathian flysch basins: A case study from the Palaeocene–Lower Eocene flysch of the Silesian, Subsilesian and Skole series, the Polish Carpathians

Abstract: The synsedimentary-penesedimentary calcareous material from Palaeocene–Lower Eocene deposits of Silesian, Sub-Silesian and Skole series (Polish Outer Carpathians) was analysed. Calcareous material is represented by debris of shallow-water skeletal organisms while inorganic material by various types of carbonate clasts (including limestones and marls) and were found within following lithostratigraphic units: Upper Istebna Sandstones, Ciężkowice Sandstones, Goryczkowiec Sandstones, Czerwin Sandstones, Bircza Lithotamnion Limestones and Babica Clays. Analysed material is dominated by coralline red algae of the family Sporolithacea and the subfamily Melobesioideae. The subfamily Mastophoroideae and the family Peyssonneliaceae are subordinate components. Coralline red algae occur in rhodoliths, encrustations, isolated fragments of thallus (algal debris). Subordinately calcareous material is represented by debris of bryozoan colonies, bivalves, echinoderms, corals and shallow-water benthonic foraminifera. Common bioerosion structures in the bioclasts, represented by ichnogenera: *Trypanites*, *Gastrochaenolites* and *Entobia*, indicate low sedimentation rate in places where the bioclasts were formed and rested originally. Results of investigations suggest that the calcareous material was formed periodically and locally within shallow-water, marginal shelf parts of Carpathians Flysch basins and secondarily redeposited together with co-existed siliciclastic material into deeper settings by variated-density turbidity currents and debris flows. Calcareous algal material is represented by “maerl” and rhodolith banks depositional facies. There is no evidence for existence of widespread carbonate platforms and reefs at the Carpathian flysch basins during Paleocene–Lower Eocene. Development organogenic components in shallow-water settings was controlled by siliciclastic sedimentation rate, eustatic sea level changes and regional tectonic activity.

Key words: Palaeocene, Lower Eocene, flysch, calcareous material, calcareous red algae, shallow-water carbonate sedimentation