RUGOSE CORAL HOLDOVERS AS POSTCRISIS ECOLOGICAL INDICATORS IN THE MIDDLE ARTINSKIAN TIME

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The Middle-Artinskian event was investigated in onshore deposits in the central Urals (Karpiha, Most) sections and northern Timan section (Sula River), both corresponded to the north-eastern marginal basin of the Pangea Palaeocontinent. The crisis level is defined by the lower boundary of the Bairdia aculeata Zone (pers.comm. of Dr. E. Guseva). The fauna turnover coincides with sharp lithological changes marked by the second-order sequence boundary. The deposits are represented by mudstones and siltstones overlying tempestites (packstone and mudstone), brecciated limestones or the Palaeoaplisina - coral boundstones. The gradually impoverished shallow-water assemblage of the Palaeoaplisina and hermatype corals is replaced by communities including benthic ahermatype solitary corals and ostracods. Coeval taphocoenosis consists of some elements of more deep-water fauna, such as calcareous spongia spicules, fish remains (Acanthodus sp., Palaeonisci sp. , pers. comm. of Dr. A. Ivanov), rare radiolarians and indefinable conodont fragments. Pre - crisis Rugose coral assemblage shows the gradual taxonomic and quantitative demeanition of diversity, which have been typical for the climax phase of the Protolonsdaleiastraea ecological succession. The Mid-Artinskian recurrent assemblage consists of the primitive ahermatypic diaphragmatophora corals, so-called "Cyathaxonia fauna", exhibited in the studied sections by Lophophyllidium (Lophophyllidium), Pseudowannerophyllum, Cyathaxonia, Cyathocarinia, Paralleynia. Most of these taxa are the long living holdovers, which occur repeatedly in post-crisis intervals during the Late Palaeozoic (Kullmann, 1995). The evolution pattern of this group shows the specific replacement and fluctuated diversity. The isotope analysis of O and C was done based on the shells of the Sakmarian -Artinskian brachiopods from the Sula River section. A gradual shift of $\delta^{13}C$ from + 3.1 to + 3.5 ‰ coincides with the pre/post crisis interval. The enrichment of ^{18}O has the same trend from 22.3 to 23‰ . The similar values of $\delta^{13}C$ in the Upper Carboniferous -Lower Permian primary carbonates in the Sverdrup Basin of Canadian Arctic were interpreted as characteristic for deeper water sediments (Beauchamp, Oldershaw, Krouse, 1987). The Middle Artinskian ecological event appeared to be connected with the abrupt transgression and decline of temperature over western and eastern shelf basins of the Pangea Palaeocontinent. The increasing of the climatic thermal gradient seems to be the result of enhancing of the climatic differentiation , which is proved by the temperature inclining over the Tethys Realm (Ross and Ross, 1988).