



Long-term paradoxical aftermath of the Early Permian climatic warming in the Northern Hemisphere: biotic and abiotic aspects

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Far distant influence of the climatic changes is rather variable and sometimes paradoxical. One of the examples is the flourish of the Photozoan association in the Northern Hemisphere during time of Southern Hemisphere glaciation (P2) and its following collapse in the interglacial phase. Modelling of the possible extrinsic factors using isotope data from the Urals has demonstrated the complex succession of abiotic changes including circulation changes and penetration of cold water from Northern Panthalassa. The invasion of cold water into the Uralian Basin led to disarray of the coastal circulation and rising of cold water via upwelling. It was resulted by change of biota and wide distribution of the heterozoan biota. The replacement took place both in carbonate ramp and reef facies. The depletion of $\delta^{18}\text{O}$ during the early Artinskian was demonstrated by analyses of the biogenic carbonates from Belaya Gora (Most) section. This coincides with the previously known trend for $\delta^{18}\text{O}$ shown for low latitudes from the Sakmarian to early Artinskian with a minimum during the middle Artinskian and is in accordance with recent data from the South Urals. The heterochrony of the impact in the far-distant and discrete photozoan assemblages depends on their bathymetric and paleo-latitude position.