

Hypoxia evolution on the Ukrainian shelf of the Black Sea

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The occurrence of oxygen depletion has increased between 1970 and 1990 on the northwestern shelf of the Black Sea. Deoxygenation causes modifications of the benthic compartment and induces a deterioration of the structure and the functioning of the ecosystem.

Within the framework of the BENTHOX project, a biogeochemical study focusing on modern and past hypoxia was conducted on the Black Sea. It aims on the one hand to understand the impacts of hypoxia on benthic-pelagic exchange fluxes and diagenetic processes, and on the other hand to reconstruct the history of bottom hypoxia using a multi-proxies approach.

Sediment material has been collected at 4 sites during the spring EMBLAS-II 2016 cruise on the Ukrainian continental plateau in the Black Sea. Sediment cores taken using a multicorer were used for microprofiling of oxygen, sulfide, N₂O, pH and redox, for incubation experiments and for porewater extractions by Rhizon technique. Long cores were collected with a gravity corer to obtain a larger age span of the sediments.

The first results will be presented and discussed. Porewater study should allow a better understanding of diagenetic reactions and biogeochemical cycling of nutrients. Sediment analysis would provide more information for the reconstruction of the history of hypoxia.