



## **Benthic hypoxia and early diagenesis in the Black Sea shelf sediments**

Audrey Plante (1,2), Nathalie Roevros (1), Arthur Capet (2), Marilaure Grégoire (2), Nathalie Fagel (2), and Lei Chou (1)

(1) Service de Biogéochimie et Modélisation du Système Terre, Université Libre de Bruxelles, Brussels, Belgium (Audrey.Plante@ulb.ac.be), (2) Université de Liège

Marine waters of semi-enclosed seas are affected by a major environmental issue which is oxygen depletion in bottom waters. Deoxygenation is one of the most widespread man-induced consequences which can be catastrophic for living species. Between 1970 and 1990, the benthic compartment of the Black Sea underwent modifications due to the occurrence and increase of hypoxia. Indeed, these changes might cause a deterioration of the structure and functioning of the ecosystems. Nowadays, some regions, such as the north-western shelf, are still affected seasonally by this phenomenon. Within the framework of the BENTHOX project, a biogeochemical study focusing on the early diagenesis is conducted in the Black Sea. It aims (1) to obtain a better understanding of the impact of benthic hypoxia on the diagenetic pathways, (2) to contribute to a new dataset of biogeochemical measurements in the sediments including porewaters. During a cruise (Emblas II – May 2016), on board the *RV Mare Nigrum*, sediment cores were taken at 4 stations on the Ukrainian shelf. Porewaters were extracted on board the ship using Rhizon technique under N<sub>2</sub> atmosphere and will be analyzed for dissolved nutrients and major ions. In addition, sediments were sliced and will be determined for major solid phases and trace element contents. A multi-proxies (biological, sedimentological, mineralogical and geochemical) approach will be used to identify the hypoxic events and to reconstruct the history of bottom hypoxia. The results obtained will be presented and discussed with emphasis on the first outcomes and the major biogeochemical processes involved in the early diagenesis.