



## Studying the impact of particle resuspension for modeling and predicting Hypoxia on the Black Sea shelf.

The northwestern Black Sea shelf, an extensive shallow area with intense primary production, is vulnerable to hypoxic events. Bottom hypoxia occurs seasonally in regions where the oxygen consumption by benthic respiration cannot be compensated by ventilation. It intensifies at the end of summer due to stratification and organic matter accumulation, imposing significant stress on the ecosystem. Accurate modeling and prediction of hypoxia is crucial to address potential biodiversity loss. This study models the impact of current and wave-induced resuspension of suspended particulate matter (SPM), both biogenic and non-biogenic, on hypoxia and biogeochemical cycles on the Black Sea shelf. We aim to differentiate the opposing effects of resuspension on bottom oxygen consumption via changes in light and nutrient availability and benthic oxygen demand. The influence of physical SPM transport on hypoxia is also investigated. A coupled physical-biogeochemical model (NEMO 4.2 - BAMHBI) at 2.5km resolution is employed

*Mathurin Choblet - MAST-FOCUS, University of Liège, Liège, Belgium; Luc Vandenbulcke - MAST-FOCUS, University of Liège, Liège, Belgium; Marcel Ricker - Helmholtz-Zentrum Hereon, Germany; Joanna Staneva - Helmholtz-Zentrum Hereon, Germany; Marilaure Grégoire - MAST-FOCUS, University of Liège, Liège, Belgium*