Type: Conference oral presentation

Event & Location: 2nd Deep Carbon Observatory Early Career Scientists Meeting, Ponta Delgada, Azores, Portugal

Title: **Carbon oxidation and fixation through sulfur-dependent pathways at the seafloor**

Abstract: Sulfur-involving biogeochemical pathways play a key role in organic carbon oxidation and chemosynthetic carbon fixation in marine benthic environments and subseafloor sediments. The oral presentation will outline recent advances in situ measurements and chemical speciation of anaerobic organic carbon degradation products in sediments and carbon fixation metabolites in seafloor chemosynthetic ecosystems. Specifically, organic carbon oxidation at low-oxygen environments such as Black Sea and Baltic Sea will be the focus of the talk, while another focus will be on recent collaborative work in seafloor hydrothermal vent systems where temporal variations in sulfur species is a major driver of carbon fixation processes. In this talk the emphasis will also be on new methodological approaches such as in-situ voltammetry, lab-on-chip chemical sensors and chemical speciation methods involving the quantification of metal-sulfur nanoparticles. As a case study, detailed results from a redox gradient in the Baltic Sea will be presented in the companion poster presentation.