

Type: Invited conference talk

Event & Location: – Second Symposium on Regional Cooperation in Eastern Mediterranean Sea Research, University of Haifa, Haifa, Israel

Title: **From anoxic seas to seafloor hotspot ecosystems: Deep carbon cycle through sulfur-dependent biogeochemical pathways**

Abstract: Photosynthesis and aerobic respiration dominate the discussions of global carbon cycle in the world ocean as well as the Mediterranean Sea biogeochemistry. However, we are now beginning to understand the importance of dark ocean carbon fixation and feedbacks from anoxic benthic environments to the ocean carbon cycle. In this regard, sulfur-involving redox processes lay at the center of organic carbon oxidation and chemosynthetic carbon fixation in marine benthic environments and seafloor sediments. Here we will outline recent advances in the chemical speciation and 'in situ' measurements of anaerobic organic carbon degradation products and carbon fixation metabolites in seafloor 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. We will comparatively present new results from East Pacific Rise hydrothermal vents as well as shallow water vents in the Mediterranean. In this talk the emphasis will also be on new methodological approaches such as in-situ autonomous chemical sensors and their potential applications in the Eastern Mediterranean Sea pelagic and benthic ecosystems.