

PROJECT METROL: METHANE FLUXES IN OCEAN MARGIN SEDIMENTS - MICROBIOLOGICAL AND GEOCHEMICAL CONTROL

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Seepage and gas emission from the ocean margin seafloor provides a methane window between sub-surface sediments and the water column and, potentially, the atmosphere. Although important for the global methane cycle, this methane flux probably accounts for less than 10% of the entire methane production in the sea bed. The major sink for the sediment methane is its breakdown by anaerobic oxidation upon entry into the sulfate zone. The main objectives of the EU-funded project, METROL, is to understand and quantify the accumulation, transport and oxidation of methane in selected European margin sediments, and to determine the position and efficiency of the sub-surface methane barrier relative to the total carbon flux. Among nine European partner, the project brings together geophysicists, geochemists and microbiologists in field studies in the Baltic Sea ũ North Sea region and in the Black Sea. Among the approaches used, the distribution of shallow gas is mapped concurrent with porewater analyses of gravity cores at strategic sites in order to model and map the relationship between depth of gas and flux of methane. New field data on methane and carbon fluxes are combined with existing data in the geoscience database PANGAEA and applied for transport-reaction modeling and GIS-based visualization of the methane flux and its controls. The presentation will give examples of early results of the project. Further information can be found in the web under www.metrol.org.