



Diversity and activity of benthic microbial communities at the North Alex mud volcano, Eastern Mediterranean

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North Alex mud volcano, located on the upper slope of the western Nile deep-sea fan, is characterized by an active seepage center transporting pore fluids, hydrocarbons and gases from deep subsurface sources to the sediment-water interface. Surface sediments feature steep temperature gradient of $8.5^{\circ}\text{C m}^{-1}$. We sampled the top 40 cm of the sediments at different locations between the center and rim of the mud volcano to study the diversity, activity, and physiological characteristics of benthic microorganisms. The sediments revealed the activity of anaerobic oxidation of methane coupled to sulfate reduction with a mesophilic temperature optimum. Organisms involved in the process include consortia of methanotrophic archaea (ANME-2 group) and an unknown bacterial partner. Besides methanotrophic organisms the sediments harbored a variety of other bacterial and archaeal groups – including potentially thermophilic bacteria that could be involved in sulfur cycling. This poster presentation will provide an overview of microbial activities and community compositions of North Alex mud volcano sediments.