



News from the "blowout", a man-made methane pockmark in the North Sea: chemosynthetic communities and microbial methane oxidation

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The accidental penetration of a base-Quaternary shallow gas pocket by a drilling rig in 1990 caused a “blowout” in the British sector of the North Sea ($57^{\circ}55.29' \text{ N}$, $01^{\circ}37.86' \text{ E}$). Large quantities of methane have been seeping out of this man-made pockmark ever since. As the onset of gas seepage is well constrained, this site can be used as a natural laboratory to gain information on the development of methane oxidizing microbial communities at cold seeps. During an expedition with the R/V Celtic Explorer in July and August 2012, we collected sediments by video-guided push-coring with an ROV (Kiel 6000) along a gradient from inside the crater (close to where a jet of methane bubbles enters the water column) outwards. We also sampled the water column in a grid above the blowout at three different depths. In this presentation, we provide evidence for the establishment of methanotrophic communities in the sediment (AOM communities) on a time scale of decades. Furthermore, we will report data on methane concentrations and anaerobic methane oxidation rates in the sediment. Finally, we will also discuss the spatial distribution of methane and aerobic methane oxidation rates in the water column.