



Long-term multibeam monitoring of natural methane seepage offshore Prins Karls Foreland, Svalbard

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Natural methane seepage from the seafloor to the hydrosphere occurs worldwide in various marine environments. Depending on water depth, methane fluxes from the sediment to the water column and mixing rate of the seawater, methane may partially reach the atmosphere where it could contribute to the global greenhouse effect. This can be observed from hydro-acoustic systems during research surveys. However, natural gas emission is not a continuous process and may vary in intensity and frequency. It is therefore necessary to study the temporal variability of methane seeps using long-term observation methods. One sensitive, accurate and reliable way to do this is by hydro-acoustic systems mounted on ocean observatories.

Here we present new long-term hydro-acoustic monitoring data from a known highly active seepage site offshore Prins Karls Foreland, Svalbard. The data were acquired by a horizontally looking M3 multibeam echosounder system that was mounted on a benthic ocean observatory from October 2016 to July 2017. Our preliminary results show the presence of at least one active seep in the very close vicinity (~ 3.5 m) of the observatory throughout the observation period. Its occurrence varies from non-existent to constant phases. We will present the frequency of appearance and changes of the observed flares over time. The first results confirm that methane seepage is not a constant process and emphasize the importance of long-term monitoring of methane seeps with regard to a reliable flux rate determination and their realistic impact on the climate.

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