



The Bornholm Basin case study of methane in seabed sediments

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The goal of the METROL project is to develop a general and calibrated model for methane below the seabed, in order to quantify fluxes in European Ocean margin areas and predict their response to environmental change.

Within the EU project METROL (methane flux control in ocean margin sediments) existing shallow seismic data from the GEUS archive have been interpreted from the south-western Baltic Sea, with the purpose to make a general map of the distribution of acoustic blanking, representing the distribution of methane in the sediments.

The idea is thus, that the acoustic data with appropriate correction for water depth define the sub-surface position of the transitional sulfate-methane zone. This position in turn defines the sulfate and methane fluxes and thereby allows a calculation of the methane oxidation rates.

Additional detailed studies have been made in order to calibrate the model concept. This includes besides acoustical data concurrent sediment coring, analysis of chemical pore water gradients and process rates in different sediment settings.

Key area studies in the Bornholm Basin will be presented to illustrate the close linkage between the geological setting and methane distribution, as it is illustrated in the Bornholm Basin, where the methane distribution is controlled by bottom current fine-grained sediment deposition in the tectonically developed Bornholm Basin.