

## Beyond methane seeps in the European high Arctic: Episode II- Global significance

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Methane seepage is a worldwide phenomenon along the continental slopes and shelves. Our attentions in such unique environment have shifted from the concerns about the feedback on climate change to its interaction with biosphere and potentially ocean chemistry. I will review the recent studies on the several methane seeps along the continental slope/shelve of the European high Arctic. The geochemical signatures of the fluid in the sediments reveal the diverse nature of the hydrology and plumbing system which may be able to correlate with the large scale tectonics and/or glacial history in the region. To assess the role of methane seeps in terms of global carbon cycling, we have made the first attempt to compile geochemistry data from methane seeps worldwide. We specifically looked into the flux of alkalinity from methane seep sediments to the overlying bottom water, which can buffer pH changes and halt ocean acidification. We quantitatively examined our estimation with a long-term ocean-atmosphere-sediment carbon cycling model (LOSCAR; Zeebe, 2012) which can provide our estimation a global significance.