

Interactive comment on “Quantifying in-situ gas hydrates at active seep sites in the eastern Black Sea using pressure coring technique” by K. Heeschen et al.

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Received and published: 21 September 2011

Dear John Pohlman, we thank you for your most careful and constructive review of our manuscript. We implemented your major comments as follows:

1) We would like to keep the model in the Appendix saving interested readers from having to put together various codes from older models with additions from the new model. We did like your suggestion to add some of the model to the text such that all readers get the most important information on the modeling part. In the method part we now point out the differences between the old and the new model and refer to Reitz et al., (2011) for a comprehensive discussion on the measured and modeled porewater

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data. Further we supplemented the discussion on gas hydrate formation from free methane gas with short aspects of the model where the amounts of gas hydrate present could not be formed from advected dissolved methane only. This was already the case at Hydrate Ridge (Haeckel et al., 2004), however, it is most pronounced at Batumi Seep, where fluid flow rates are close to zero. This way we moved important modeling results into the main text plus added details to the above discussion as you suggested.

2) We considerably shortened paragraph 4.3 and now refer to the recently published paper from Reitz et al. (2011) rather than to the geophysical data from Wagner-Friedrichs (2007) leading to a lengthy discussion now redundant due to the publication of Reitz et al. (2011). We decided not to delete the whole paragraph as the gas composition is important in terms of the gas hydrate structure and stability conditions. Further, the data presented in paragraph 4.3 would not be published otherwise, which would be a pity as there aren't so many data from gas hydrates and pressure cores. Reitz et al. (2011) also refer to our gas analysis because it was the first data set from this area indicating the different origins for light hydrocarbons. 3) Thank you very much for all your detailed notes in the pdf supplement which we integrated with very few exceptions and comments that we followed without exceptions.

Thank you again for your detailed and most constructive comments. Best regards

Interactive comment on Biogeosciences Discuss., 8, 4529, 2011.

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