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# *Interactive comment on* "Gas emissions at the continental margin west off Svalbard: mapping, sampling, and quantification" *by* H. Sahling et al.

**Anonymous Referee #1**

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The manuscript "Gas emissions at the continental margin west off Svalbard: mapping, sampling, and quantification" by Sahling et al. presents a comprehensive new data set that allows quantification of methane flux from the continental shelf off Svalbard, Fram Strait. This quantification is important for understanding the role that gas hydrate dissociation may play for future climate change its effects on ocean chemistry. Thus the material is highly relevant to the readership of Biogeosciences.

The paper is carefully prepared with clear organization, good English, clear figures, and up to date references. The data acquisition and methods are reproducible and the observations are described comprehensively. The conclusions are supported by the results section and uncertainties are discussed.

The resulting methane flux is one order of magnitude smaller than the one proposed



by Westbrook et al., 2009 and two orders of magnitude smaller than the estimates by Berndt et al., 2014, which is interesting as the numbers presented in the Sahling paper are the first attempt at ground truthing the predictions made in the above sited references putting these calculations in perspective.

The finding that there is a large number of gas flares on the continental shelf will surely trigger further studies in the study area.

I suggest that the paper should be accepted for publication after very minor revisions:

The Page 7205: Line 25: do not does Page 7210: Line 16:bubble flux not bubbles flux Page 7210: Line 27: bottom water or bottom-water warming not water warming Page 7212: Line 3: cannot not can not Figure 1: needs an overview map (where is the study area in the North Atlantic? - at least show Svalbard)

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Interactive comment on Biogeosciences Discuss., 11, 7189, 2014.