Editor Decision: Publish subject to minor revisions (Editor review) (04 Feb 2017) by Dr. Nina Kirchner
Comments to the Author:
Your response to the reviewer's comments has now been evaluated.

While many comments have been addressed in the revised manuscript, some appear to have not been addressed:

* To shorten the introduction so that it becomes a concise introduction to the manuscript (suggested by Rev #1). Despite the suggestion to shorten, the revised manuscript is longer now by 2 pages!

• We have removed 1200 words (shortening the introductory section by 1000 words), moved an additional figure to the supplemental material, and moved the bubble equations into the methodology where they describe the bubble model. The manuscript is now five pages shorter than the revised version.

* To better justify the pre-study in Californian waters or consider removing it (Rev #1)
• Study motivation rewritten to better explain motivation. Basically, the in situ data in the ESAS were less complete than desired and by including the Coal Oil Point data we are able to better explain the sonar observation of plume evolution.

* To modify the title of the manuscript so that it better reflects its contents with regard to the geographical area covered (see Rev #2).
• We have modified the title to: Sonar Gas Flux Estimation by Bubble Insonification: Application to Methane Bubble Flux from Seep Areas in the outer Laptev Sea

Once these minor modifications are made, the paper can be published.

Non-public comments to the Author:
Dear Authors,

I have now evaluated your response to the reviewer's comments.
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have not been addressed.

I would like to suggest that you

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* consider Muyakshin & Sauter, 2010 (Rev#2). I will send the pdf to you. You could have asked me for help in this issue!
Thanks, I read it quickly. Muyakshin neglects that bubbles may multiply scatter – whereas Weber 2008 actually does the calculation and shows the multiple scattering is important. There are also a lot of other assumptions. For example, while it is true that sonar return decreases for bubbles smaller than resonance, this does not mean that they contribute nothing to volume flux and can be neglected. Muyakshin also did not have a measured bubble size distribution, so used others – but they were major bubble plumes, not minor bubble plumes. In a major bubble plume almost all the volume is carried by the very largest bubbles, which does not apply for the flows in our study. I could go on, but…..

However, I cite Muyakshin and Sauter as an example of using a ROV for a sonar survey, and also added a citation to Eberhardt's 2006 bubble measurements.

Please make an effort to carry out these corrections so that the manuscript can be published afterwards.

Best wishes
Nina