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Interactive comment on "Marine mammal tracks from two-hydrophone acoustic recordings made with a glider" *by* Elizabeth T. Küsel et al.

Anonymous Referee #2

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Review of "Marine mammal tracks from two-hydrophone acoustic recordings made with a glider," by Elizabeth T. Küsel, Tessa Munoz, Martin Siderius, David K. Mellinger, and Sara Heimlich

This manuscript is a descriptive report of the performance of a Slokum glider with two hydrophones mounted on the wings of the glider, providing an 0.9 m spacing between hydrophones. A modified commercial TASCAM stereo recorder with about 23 hours of operational time (limited by the 32 Gbyte of memory storage at 96 kHz sampling rate).

This manuscript is worth while publishing only because the use of acoustics on glider for marine mammal detection is in its infancy and it's important to share various investigators' experiences and results from their field test. In this case, 23 hours of recordings were achieved but most of the data occurred in a 1 hour time span. However, I do have

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Discussion paper

a number of misgiving about this manuscript and are basically involve the avoidance of serious discussion about the usefulness and accuracy of the results. I will details some of the items that the authors should address in a revision.

1. The accuracy of the bearing estimates is never discuss and I think it needs to since I believe the accuracy was not very high. The baseline is too short and the further out the animals are from the glider the more inaccurate the estimate. Also the position of the animals with respect to the glider direction will have a big effect on the accuracy. The dynamics of the glider, especially the yaw, is not even mentioned. The localization is discussed in a manner that suggest no problems, not issues, perfect localization. I think this issue is considerably more important than the techniques used for localization since time of arrival difference based cross correlation analysis is fairly routine.

2. There is some hand waving in the statement "Such information can be valuable to density estimation methods, either directly for estimating the percentage of time a species produces sound during one day (Marques et al., 2013)." If you have a moving platform and come across a group of animals also moving, directly estimating the percentage of time a species produce sounds can surely be done but what does it mean? How such (bearing estimate) information be valuable to density estimation methods seems like a good statement to make but is it really true with poor bearing accuracy?

3. There should be a better way of displaying click signals then a spectrogram. All you see is a line going to very high frequency (off the chart in some cases) and that's support to tell me more than the time of occurence? How's about plotting center frequency or peak frequency instead?

4. A minor issue is the phrase in the last line of page 3, ". . ..where high frequencies are highly attenuated." I don't know what highly attenuated means? At 30 kHz the absorption coefficient is about 3.9 dB/km and at 15 kHz its about 1.0 dB/km. I don't consider the 2.9 dB/km difference very large in the broader scheme of ocean propagation.

5. I don't understand why click ID software such as M3R is not used to try to ID some

of the deep diving odontocetes like beaked whales, Risso's dolphins and pilot whales.

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