

Interactive comment on “Seawater capacitance – a promising proxy for mapping and characterizing drifting hydrocarbon plumes in the deep ocean” by J. C. Wynn and J. A. Fleming

Anonymous Referee #2

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This manuscript opens very interesting perspectives in terms of detection of the transport and fate of hydrocarbon plumes.

The paper is nicely presented. The motivations are clear.

The method itself is adapted from previous applications to seafloor detection. The main issue concerns the sensitivity of the response to the oil concentration, to its particular properties (including droplet size) and to the possible influence of other substances on the registered signal.

I understand that a full description of all the different aspects of the method is beyond the scope of this paper, that is appropriately entitled ‘a promising proxy...’. A short

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discussion on these important issues would however be useful to assess the feasibility of the method and the possibility to really quantify the amount of oil in the system. The preliminary results indicate that the method can detect concentrations down to about 0.1 % but also that the response is not a linear function of the concentration. What can be hoped ?

Minor comment.

The influence of the experimental approach considering the unstable oil emulsion generated by a martini stirrer should be further assessed and discussed. More specifically, does it only influence the low frequency noise ?

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