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Interactive comment on "Technical Note: Oxygen Optodes on Profiling Platforms: Update on Response Times, In-Air Measurements, and In-Situ Drift" *by* Henry C. Bittig and Arne Körtzinger

Anonymous Referee #3

Received and published: 29 October 2016

REVIEW: "Technical note: Oxygen optodes on profiling platforms: update on response times, in-air measurements and in-situ drift"

In this manuscript, the authors provide additional information complementing their recent work, as well as clarifications which bring the works of Bushinsky, Johnson and their own in line, explaining some of the discrepancies that had appeared in drift estimations. This manuscript provides valuable information and a significant improvement on their previous work and is very much timely in the context of ongoing global efforts (AntlantOS, SOCCOM, etc.).

The work in the manuscript is of a high standard and my comments relate only to the occasional awkward phrasing or a need for clarification. My only concern, which

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relates not to this publication specifically, but to the recent body of work on this topic is that I feel that the Bittig et al. papers (2014, 2015a, 2015b and this one) would have been much more valuable as a cohesive whole, or two papers, rather than broken down in these smaller "technical note" units. It becomes difficult to follow the overall narrative and the inexperienced reader is likely to be lost in a collection of different parameterisations. Despite this, the authors must be commended for providing a clear, concise overview in the appendix of this manuscript; it is just a shame it is relegated to the end of a technical note that likely will not be perceived as the definitive body of work due to the title.

Comments:

The authors may consider changing the title to avoid a series of colons, maybe something like "Update on response times, in-air measurements, and in-situ drift for oxygen optodes on profiling platforms".

Abstract lines 4 and 5. The sentence beginning with "Also. . ." could be combined with the previous one.

1 Introduction, the first paragraph is one long sentence that is poorly structured.

P1L20: "they" cannot refer to oceanic oxygen measurements.

P1L21: I would suggest splitting the sentences at the colon. The final sentence beginning with "Also. . ." is also awkward.

2 Instrument description, line 16, parenthesis within parenthesis are discouraged.

I may have missed it, but the authors do not specify which type of foil and whether these are pre-aged or not for the AA4330.

3 Time response, P2L30 Are the authors able to quantify the error that was introduced by relying on "nearby" profiles?

P3L9: How well is "well-defined"?

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Was the vertical offset in sensors taken into account? By that I mean, the authors specify the floats were modified to return a specific timestamp for the oxygen probes. Was that a time stamp for each, or did the float run on a single thread processor collecting sequential measurements of P, time and oxygen with a single timestamp for both oxygens, in which case vertical spacing needs to be accounted for?

Have the authors observed any bias due to the thermal inertia of the sensor itself affecting the sample (primarily on the AA4330)?

Figure 1: Figure title is wrong, and the N above the colorbar unclear.

Figure 2: I feel that replacing density with temperature (or adding another subplot) would be much more useful. Salinity has little to no effect here, whereas temperature does.

P5L6: missing a word between “It is” and “to note”.

P7L2: Purely a question of preference, but I would replace “their” by “the” (or even “our”) since it is essentially the authors’ work. “Their” comes across as a bit artificial.

P10L4: It would be interesting to verify this; however, this is likely out of the authors’ hands. If the authors get the chance, having this verified (or simply getting a pers. comm. from Johnson et al.) would provide a much greater level of credibility. Otherwise, this comes across as purely speculative and out of place.

P12L17: rephrase “easier accessible”

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