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Ocean Science Discussions

Interactive comment on "A measurement system for vertical seawater profiles close to the air/sea interface" *by* Richard P. Sims et al.

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General comments: The present paper under review for Ocean Science describes state-of-the-art technology to measure high resolution profile in the upper 5 m of the ocean. I appreciate the effort of research, develop and validation of the authors. Everyone working on R&D knows that behind these two examples profiles are a lot of trial-error and frustration. I also think the described technology fill a gap and it is really important and that it is adequate to the scope of the journal. I will recommend publication after some minor/moderate revision. I hope the comments help to improve the ms. I understand first author is PhD student and I congratulate him for the nice work.

Page 4-line 15 Define ID 4-25 I am curious to know what the maximum wave height is and wind you deploy. Also applicable for my first comments on real live application.

5-4 What is the maximum distance? 5-12 unfortunately I can't access to supplement material. I would love to see the videos 5-22 What is the limitation of the deployment length? Battery? Can other deployments, ship operations happen at the same time, like CTD, so you have a concurrence profiles? 6-10 Please check figure order of appearance, suddenly here we found Fig. 9. 7-21 In test and figure, unify use of litre with capital L 7-29 How was the pressure inside the equilibrator measured? 9-1:4 Could you provide more details of the membrane (μm...) Figure 3 caption: Could you add legend (nice to understand the figure without the need to read first). What is LPM in the x-axis? 10-16 what is m/z 10-19: two points in the reference 11-12: wrong use of () in the reference Figure 4: what is the magnitude of the change? For example from 400 to 1000 ppm or 400 to 450 ppm (that will make a different, right?)? I miss a table of comparison of discrete and continuous operation. Also another one of the sensor use with the accuracy/frequencies... to have a quick overlook of the system. 12-23 Probably not need to say the SOP# In all figures, A), B) C) in the figures are capital but in the captions are not. Please unify. 14-13 How much of the unsaturated? 15-15 Could you provide a bit more detail about this mooring? Maybe a map with location site and the moring will be helpful for readers not familiar with the area. Figure 6 and 9 are quite confusing, as depth is plot with time instead as usual oceanography profile way. In a related note, what is the different info from figure 9 and 10? 16-1:6 Can the drifting from ship cause turbulence/mixing? Would be possible to measure turbulence within the NSOP? 17-2 When you talk about significantly different I expect a statistical test. 17-1:5 This paragraph is really important and key message of paper so I will like to have more discussion on it. What is the role of sea surface microlayer? What is the implication of the calculations of flux as normally do it from 5 m? ... 17-18:19 This comparison with underway CO2 is also really important. Can you provide more detail? I will think that ship disturbance will have more influence of underway system... What is RMS? Why we should care about NSOP if they give similar results of usual pCO2 instrument? I really think it is important, do not take me wrong, I just think a bit more discussion will be good

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