

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

### **Anonymous Referee #3**

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This paper reports on a near surface profiler for sampling biogeochemical properties of seawater near the surface, where important biological and air-sea exchange processes take place, and where vertical characterization has proved difficult. The motivation in developing this profiling device would be to study the effect of stratification on the biogeochemistry at the air-sea interface.

There is no doubt that the authors have invested tremendous effort in developing and deploying the NSOP. However, I am a little disappointed with the scientific conclusions. In fact the article appears to be more of a technical description of an instrument, and therefore I think it might have been more appropriate for a more technical journal such as *Methods in Oceanography*. Therefore if the authors wish to publish this in OS, I suggest that they provide some further material on the scientific consequences of the NSOP. I do not think that this will require much effort, and although my major

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revisions rating appear to be a little severe, I do not think it will require much effort. The current effort in their conclusions - "The presence or absence of chemical and biological gradients within near surface stratified layers has been difficult to assess. NSOP is a platform with the capability to successfully resolve gradients in these near surface layers." - is weak, and I have no doubt that given the list of authors here, a little more effort would provide much improved conclusions. For example: how well does the temperature-pCO<sub>2</sub> relationship of 4.23% per degC hold? What are the global consequences for stratification on air-sea gas exchange?

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