

***Interactive comment on* “Sensors for physical fluxes at the sea surface: energy, heat, water, salt” by R. A. Weller et al.**

Anonymous Referee #2

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Weller et al. have done a masterful job in reviewing the present state of sensors for measuring the fluxes of energy, heat, water and salt. The review is thorough and provides a sufficient number of references and websites that will be helpful for other researchers. The Tables and Figures are excellent and help greatly.

I have written several notes and suggestions in the margins of the paper and will send these directly to Bob Weller for his consideration.

I have only a few suggestions for consideration by the authors:

1. It would be nice to bring out the importance of these direct measurements of fluxes vis a vis the emerging indirect measurements from satellite-based sensors. Along this line, a brief section comparing and contrasting the advantages

- and disadvantages of the two sampling modes would be useful. It could be emphasized why “reference site” measurements are so critical as planned for the OceanSITES program.
2. Formulations of drag coefficients are mentioned in passing on p. 329. I wonder if an Appendix on these would be useful. I realize that some of the formulations are somewhat complex, but perhaps a guide for readers would be useful.
 3. I have made a few suggestions concerning the penetrative component of solar radiation in the margin notes for consideration (p. 341).
 4. A brief discussion of some related flux measurements of climatological and biogeochemical importance would be useful, though I realize they are not the main focus here. For example, the work of Ed Sholkovitz (WHOI), Lilianne Merlivat (Paris VI) and Chris Sabine (PMEL) comes to mind. The measurements highlighted in the present review are certainly important for their work and the power of synthesizing these latter measurements of quantities including CO₂, dust, aerosols (actually done nicely in review), etc. could be brought out.
 5. The authors have done an excellent job in discussing the need for and state of high wind observations. I felt that perhaps a bit more could have been written on measurements in high latitudes where icing and frigid temperature are major concerns.
 6. The Summary was a bit terse I felt. I have given a couple of suggestions in the margin notes for consideration.

The paper will make an excellent contribution to the literature on air-sea flux instrumentation and should be accepted as soon as possible.

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