

Interactive comment on “Contrasting distribution of aggregates $>100 \mu\text{m}$ in the upper kilometre of the South-Eastern Pacific” by L. Guidi et al.

Anonymous Referee #1

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This paper presents the results of an excellent study using excellent techniques with excellent results in an excellent place, but the paper is far from excellent and requires substantial revision. The major flaw is the authors' use of the flux numbers calculated from the aggregate abundances. They cite work by Alldredge and others to justify their assumption that sinking speed (and therefore flux) varies in proportion to aggregate size but the relationship from Alldredge and other authors is weak at best and certainly not capable of supporting the applications used here. Further, there is no description of the sediment trap method so the reader has no basis for judging whether or not to accept these data as validation of the large particle flux estimates. The abstract states that "estimates of vertical flux rely on the sediment trap data but difficulties inherent in their design, limit the reliability of this information." This is true and well accepted so

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why do the authors later state that "When fitting the UVP data to the free-drifting trap data we assumed that the latter are correct" (Page 881)?

Okay, having said that, it is important to note that these calculations are interesting and should be published, but the authors need to be more honest and consistent with their findings and assumptions. They should state clearly that the relationship between size and sinking speed flux is extremely tenuous and that the results derived from it are similarly questionable. They should also give more details on the "minimization" procedure used to fit the two fluxes and how this is used so that the plot in figure 6 is not entirely circular, comparing one set of data to another that was largely derived from it.

There are other problems too: - lose the term "superficial." Yes, it can mean "relating to the surface," but the more common usage is "of little significance" or "oversimplified." - not all of the terms in the equations are defined; this is critical (eg. A on page 877) - the reference on the bottom of page 882 to figure 7 is probably for figure 5 - the two paragraphs on page 881 are largely redundant; this can be fixed by combining the two paragraphs - miscellaneous typos

Summary: the study was really great and the results are top notch but their presentation is lacking. Once this is cleaned up, it will represent a landmark paper but it has a long ways to go.

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