**Biogeosciences
Discussions**

# *Interactive comment on* "Autonomous, high-resolution observations of particle flux in the oligotrophic ocean" *by* M. L. Estapa et al.

**Anonymous Referee #1**

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This paper describes an autonomous, optical proxy-based method for high-resolution observations of particle flux in the ocean. This method builds on similar measurements by Bishop that have been published and properly acknowledged in this paper. This paper represents a large step forward in the number of measurements that were made simultaneously (not all were reported in this paper) and the temporal and spatial resolution of the flux measurements. In terms of BG criteria for publication - Scientific Significance, Scientific Quality, and Presentation Quality - this paper deserves a number 1 ranking across the board. It is an excellent scientific contribution.

The paper is clear in explaining methods and thorough in its discussion of the results and their importance and possible causes of anomalies observed in the proxy flux data. They also recognize the limitations of their calibrations for POC flux and suggest ways

they might improve those calibrations in the future. Their comparison with sediment trap data and the flux attenuation with depth are important and enlightening. I would love to see figures for all the float deployments in the format of Fig. 9, but they have provided sufficient data to make their points. They made excellent analysis of the "shading" of the transmissometer windows and how that would influence their results.

The title, abstract and language throughout are clear and well structured.

Detailed comments: Fig. 9. The caption says that the magenta bars show cycle-mean flux proxy and propagated fitting error. It is not clear what shows the fitting error. Do you mean the propagated fitting error is included in the bars? It also says that the LEFT hand axis denotes depth of contoured data. I think you mean the RIGHT hand side.

Table 1 and the text clearly show where the five floats were deployed. However, the text frequently refers to floats only by number, assuming the reader will remember which float was deployed where. I think it would help the reader significantly to add a letter(s) to the numbers as a reminder of where each float was deployed when discussing the floats. E.g. 1H and 2H for near Hawaii, 3SS and 4SS for Sargasso Sea and 5B for BATS.

Interactive comment on Biogeosciences Discuss., 10, 1229, 2013.