Biogeosciences
Discussions

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Interactive comment on "The vertical distribution of buoyant plastics at sea" *by* J. Reisser et al.

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Comment 1: General: This paper represents a thoroughly desigened study, which combines field data with results from laboratory experiments in a very elegant manner. The informations presented are based on a new type of sampling device, a sound sampling strategy and this study also presents new information about rise velocity of plastic pieces. The text is very clear and reads fluently. The material and method section illustrates all required informations (sampling and experimental design, sampling gear, analyses, definition of used modells and their parameters) very clearly and in a comprehensive manner. Specific comments I have three minor comments/proposals: 1) You may consider to show/to add a graph of the relationships presented in Figure 3 (normalized plastic numerical and mass concentrations under different Beaufort scales) as predicted (model of Kukulka et al., 2012) versus observed values, in order to demonstrate the fit/differences between the two approaches.

Reply 1: We are already showing the normalized plastic numerical and mass concentrations under different Beaufort scales as predicted by Kukulka et al. 2012 (black lines), and observed values (orange dots and lines). We have re-phrased some parts of the results session to make such comparison clearer (following suggestions of reviewer #1).

Comment 2: Page 16215, Line 20 - 25 "Such differences evidence the importance of better predicting the vertical transport of ocean plastics to develop standard plastic load estimation methods". I agree, however you would also need detailed information about sea state zones (i.e. size and effects of convergence zones) to increase the accuracy of predictions.

Reply 2: Changed accordingly. We have added an extra sentence to this paragraph acknowledging that improved predictive models may need to be three-dimensional and account not only for wind mixing effects, but also ocean plastic properties (e.g. particle size) and other types of vertical transport processes.

Comment 3: Figure 5 B, C: I would suggest to use m s-1 not m/s.

Reply 3: Changed accordingly.

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