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Earth System Science Data Discussions

Interactive comment on "Bacterial biomass distribution in the global ocean" *by* E. T. Buitenhuis et al.

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Reviewer comments in blue. General comments This work compiles a database from mostly published flow cytometry results of the abundance of prokaryotes in the world's oceans and uses it to estimate the biomass of prokaryotes. Its systematic approach is a great improvement over previous estimates. One of the nicest aspects of this study is that it identifies sources of errors in the current estimate, the largest of which is likely to be the uncertainty in the estimate of the amount of carbon per cell. In addition, regional gaps in the existing data sets are clearly demonstrated. Specific comments Because flow cytometry does not distinguish between bacterial and archaeal cells, the methodology actually counted both groups. Thus, the measurement was of the number of prokaryotes and not bacteria. We have changed bacteria throughout the manuscript

to picoheterotrophs, a term that was introduced by Le Quere et al. (2005) specifically to refer to Bacteria + Archaea. The term prokaryotes also includes cyanobacteria, and therefore would not be an improvement over bacteria. Where appropriate we distinguish between Bacteria and Archaea. We clarify both in the abstract and in section 2 that picoheterotrophs includes both Bacteria and Archaea. See also our reply to the comment of Referee #2 on Archaea. Technical corrections p. 305, line 20: 'he inventory' should be 'the inventory' Figure 4 should be cited in the text. These were corrected.

Interactive comment on Earth Syst. Sci. Data Discuss., 5, 301, 2012.