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Interactive comment on "PHYTOBASE: A global synthesis of open ocean phytoplankton occurrences" *by* Damiano Righetti et al.

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This paper presents PhytoBase, a global dataset that is essentially a compilation of the existing GBIF and OBIS phytoplankton species occurrence datasets, and a few other smaller datasets. The synthesis and harmonization of these databases results in a substantial increase in phytoplankton occurrence records and yields the largest global database of phytoplankton occurrences. The PhytoBase dataset of spatiotemporal observations of species occurrences may contribute to studies that determine and forecast species distributions and studies aimed at understanding the drivers behind the distribution patterns. The limitations of the database are the spatially highly uneven data density, and, more importantly, strong biases due to differences in sampling methods (e.g. sampling volume, taxonomic resolution etc.). These limitations,

appropriately addressed in the paper, prevent the use of PhytoBase for direct analyses of species diversity patterns and biogeography studies, and severely limit the accuracy of data analyses. The authors thus correctly advise that statistical techniques be used to overcome the various biases present in PhytoBase.

I recommend publication of this database in ESSD. I only have a few very minor comments: i) What is the difference between Columns 1-2 and 3-4 in Tables 2 and 3? ii) Can you add a colorbar for the frequency distribution in Figure 3? iii)

Interactive comment on Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2019-159, 2019.