

Interactive comment on “Database of diazotrophs in global ocean: abundances, biomass and nitrogen fixation rates” by Y.-W. Luo et al.

Anonymous Referee #1

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This manuscript presents and describes a compilation of observations of diazotroph abundances and nitrogen fixation rates from field observations in the global open ocean to date. The data have been obtained using a variety of approaches. In this study, some basic diagnostic analysis and interpretations have been performed, including a conversion of cell counts, colony counts and nif counts into biomass estimates, as well as vertically integrated abundances and rates. To complement the data sets, these diagnostics are presented in map form. Global and regional integrals have been evaluated. The authors have carefully discussed and evaluated sources of uncertainty and error in all of the products and highlight needs for continued observations.

Comments.

I highly commend the authors for this invaluable effort to make available a carefully

C30

curated global synthesis of the currently available observations of diazotrophs and nitrogen fixation in the ocean. No doubt this atlas will be a much used resource; as a starting point for a growing database, for further analyses, as an educational tool, and as a test and target of interpretation for modeling studies and numerical simulations. I found the manuscript to be very clear, carefully considered and well written.

Technical points.

1. The maps are very small in the printable pdf version - it might be nice to have fewer on a page. Of course this is not an issue when viewing on screen.
2. A couple of minor grammatical points (referenced to the printable pdf): p.70, lin 2: "take a special handling" could be "give special consideration" p. 70 line 26 "Foremost" could be "First and foremost" p. 71, line 9 "dominated taxonomy" should be "dominant taxon"

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