**Earth System
Science Data
Discussions**

Interactive comment on "Distribution of known macrozooplankton abundance and biomass in the global ocean" *by* R. Moriarty et al.

Anonymous Referee #1

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1   General comments

I liked the effort done in this paper to compile data on macrozooplankton, a compartment often forgotten. We must keep in mind that macrozooplankton is collected with various kinds of nets, depth integration, tow types (oblique, vertical), seasons, years... bringing large sources of variability. It is a mess and the work done here has to be acknowledged. The other point we must keep in mind is that this compilation is mainly done to help calibrate global models, thus we are looking for "the best we can" accurate world map of the average distribution of macrozooplankton. I hope this effort will push others to add their own data and improve the dataset as well as highlighting macrozooplankton in such models.

Yet, I have two general interrogations:

- You mixed data from the rawKRILLbase and the COPEPOD datasets. The rawKRILLbase includes data on Euphausia superba and two salps whereas COPEPOD includes data on salps, doliolids, pyrosomes, ctenophores, cnidaria... (line 21 p192). When mapping the abundance there is a big shift between the Southern Ocean and the rest of the world, the Southern Ocean (rawKRILLbase) being a few orders of magnitude less abundant (fig. 4). This un-natural shift doesn't seem to be mentioned and explained in the manuscript. If I understand well you mixed abundance of three species only on one side, and of the whole community on another side, didn't you? I think this should be stated and argued further in the manuscript. How much of the total abundance these three species represent?

- I don't understand why you used so few data points for the biomass. Biogeochemical models work in carbon (or nitrogen or...) units, so the biomass appears much more useful than the abundance. There is already a large variability in the dataset (different nets, depth...) and I think that using generic relations to convert to biomass will add only a minor source of variability compared to others. The dataset will be more valuable if it proposes a large coverage of biomass estimates (as for abundance).

I think the manuscript needs more argumentation on these two points that leave the reader feeling bewildered.

2 Specific comments

2.1 Dataset

The dataset was easily available and I was able to reproduce the figures shown in the manuscript and to make others (I have done this with Matlab R2011a without any problem).

The depth binning is 0-10, 10-20, 20-30... or 0-10, 0-20, 0-30?

The unzipped MarEDat20120216Macrozooplankton.nc file is big (1.4GB); it is strange because the zipped one is only 2.3Mb. When I extract all data from it, my *.mat (matlab) file is only 10Mb. Is it only on my computer (Win7, same problem when unzipping with both WinRAR and 7zip)? You should check your *.nc file. (The data I have are 4D 360x180x33x12 matrix for abundance, biomass, number of observations... there is a total of 14 data 4D matrix)

I didn't find the original data points, only the gridded ones.

2.2 Other comments

Line12-15, p192: you didn't follow the advice of the data owner, could you explain your choice?

Line25-27, p193: see above, I have difficulties to understand this choice.

line20, p194: zero values of abundances could be transformed in log+1?

Line9-10, p195: if they are real values why removing them? You used both the mean (which is sensitive to outliers) and the median which is a robust statistics.

Line12-14, p196: Do you have a reference for this? I'm a little bit surprised there is a

decline in macrozooplankton sampling activity.

Line9-10, p198: *the general trend is high biomass in the tropics...* You have very few biomass data from 30°S to 60°N, so can you really say this?

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