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Earth System Science Data Discussions

Interactive comment on "Copepod species abundance from the Southern Ocean and other regions (1980–2005) – a legacy" *by* Astrid Cornils et al.

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Response to Reviewer 3

This paper describes a valuable data set on copepod abundance, depth distribution and stage structure, mainly from the Southern Ocean. In my opinion this is particularly well suited to the journal Earth System Science Data. This indeed forms a valuable legacy to the enthusiasm of Sigi Schiel, for her cooperative approach to research with the sharing of data. Most of my suggestions are minor but I start with a few that I think are a bit more important. Section 4. I think that it should be stated very clearly in this section that people using these data should always cite both the doi and the data

paper itself. As we move towards open data and the idea of a big data free for all, I think that the value of the source data should be respected via citation. Citing the data paper as well as the doi is both out of respect for the data themselves and courtesy to their originators, but also allows due traceability of the data. I think this point should be stressed at every opportunity.

- We have added a note in section 4 to encourage users to cite both the data collection and the publication as a courtesy to the collector and analysts.

Title- Abstract. I would have thought that Sigi's name could perhaps be mentioned in the Abstract so the legacy intimated in the title is made more clear to people who do not know. This could simply be achieved by moving a slightly modified version of the last sentence (lines 361-363) to become the first lines of the Abstract.

- We have added a modified version of the last sentence of the manuscript to the abstract and also added information in the Introduction.

Throughout the manuscript: the rationale for this data compilation is firmly around the notion of understanding the effects of climate change. This is indeed one strong reason but I think the authors could be much broader than this on how the data may be valuable. As one example Sigi worked on a series of papers in the early 1990s compiling all available data to look at life cycles of biomass dominants or key copepod species, examples being Rhincalanus gigas, Calanoides acutus and Stephos longipes. Such possibilities could perhaps be mentioned as one potentially valuable use of such depth-resolved, seasonal and stage-resolved data, e.g. Ward et al. (1997).

- We have added in section 3.3.1 paragraph on the stage resolved data from Table 3 that has been used in numerous publications by Sigi and have also mentioned that these publications are assocoiated with the splash pages of the individual data sets. We have also redrawn Table 3 to clarify during which expeditions stage-resolved data exist as suggested by reviewer 1. Thus, it is more clear now, how many stage-resolved data are available.

Section 3.4. I think that a bit more clarification of the internal comparability of this data set is needed. In particular the fact that some of the species perform extensive seasonal vertical migrations could be emphasised a bit more in the text. The implication of this is that nets particularly in surface waters may not always sample the full vertical extent of the populations, particularly those of the biomass dominants. Those working in the Southern Ocean will know this already but nevertheless I think it is important, because many non-specialists may want to use these data.

- We agree that considering vertical migration when comparing data sets is important for future usage. In section 3.2 is already a paragraph on the seasonal and diel vertical migration in high latitudes and upwelling systems explaining that season and daytime are important to consider during further analysis in order to avoid biases. We have now also pointed to this important matter in section 3.4.

Following on from this I am not sure about the recommendation to use presence- absence data to account for differences in sampling method (line318). I am sure people will do this anyway. . ... but I do not think this should be a recommendation! Presence absence data (or in other words the probability of detecting a species) will also depend on a range of factors such as volumes filtered by nets, mesh size, subsample volume analysed and other protocols for looking for rare species).

- We have deleted the recommendation

There are a large number of data compilation, archival and metadata cataloguing initiatives around and it is hard to know the relationship they have with each other and whether the same data sets (or overlapping data sets) are stored in multiple places. For example Southern Ocean zooplankton data are also compiled in COPEPOD and stored BODC and probably a load of other places besides. I think that adding a very short paragraph to highlight other such initiatives and the link between this dataset and the other ones would help the reader. Not a few paragraph, but at least a clarification of whether some of the data are either a) stored or b) catalogued elsewhere would be

useful.

- The data have not been archived elsewhere. I have searched COPEPOD, OBIS and BODC and have found no trace of any of these data. We have added this in section 3.4. There are 4 data sets that have been previously published in PANGAEA (section 2.3). These are marked that there exists a newer corrected version.

The text mentions climate change and ice loss in Antyractica, but this should be qualified to regional ice loss.

- changed

Abstract. I think the Abstract needs a bit of work with a sentence to summarise issues of data use (for example vertical coverage, net types which influence internal comparability of the data). People using the data may be in too much of a hurry to read the detail so the really essential stuff should come across in the Abstract. Also I reckon it needs a final sentence outlining the value of such datasets (effects of climate change, biogeographic distribution, life cycle, inputs to various models. . . etc) and the fact that some

- According to the comments of all three reviewer we have reorganized the abstract greatly.

Minor comments Line 11 change intermediators to intermediaries

- changed

Line 39 change Antarctic copepod community to Antarctic epipelagic assemblage. This is because diversity at depth is high.

- changed

Line 54. The Atkinson et al (2013) paper is 2012. Line 61. Change decreases to decreased

- changed

Line 70 change to The data sets presented here.

- changed

Line 92. Better to delete the first sentence

- done

Lines 242: for clarity can net times be stipulated as whether GMT or local (but present offset to GMT) and Julian days stipulated as Jan 1 being either 1 or zero.

- We have included information on the time used during the cruises under the parameter “Date/Time” in section 3.1 we have added in colour bar of Figure 2 that Jan 1 is day 1 on the scale.

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