

Response to comments by Reviewer #1 (Ralf Schiebel)

1) *The foraminifer isotope atlas of Stefan Mulitza and coauthors is much appreciated as a contribution to paleoceanography and paleoclimate, and should be published as soon as possible. In general, the manuscript is well written, and I would suggest only minor changes. I provide an annotated pdf file, which may allow for quick finding of some typos, and explains some suggestions.*

We thank Ralf Schiebel for his helpful comments and improvements on the manuscript. Our responses (plain text) are listed after Ralf Schiebel's comments (text in italic font). We have incorporated the changes suggested in the annotated pdf file into the revised manuscript.

2) *To account for the ecology of planktic and benthic foraminifers, I would suggest to define the depths habitats in a bit more explicit way. The terms "shallow" and "deep" dwelling may be misleading. I would suggest to use the term "surface mixed layer" and "subthermocline" dwelling. For example, Neogloboquadrina pachyderma may live as deep as 200 m water depth, but which is still in the surface mixed layer of the deep mixed polar ocean. In contrast, Globorotalia truncatulinoides may usually dwell at 200 m water depth in the tropical to temperate ocean, but which is well below the thermocline, at sub-surface water depth. When specifying the habitats more clearly, the isotope ranges of the different taxa may be better explained. This would still not account for the largely latitudinal and seasonal distribution of many taxa.*

We agree that our categorization into “deep dwelling” and “shallow dwelling” is somewhat misleading and subject to interpretation and likely even dependent on the local environmental conditions. Since a detailed discussion of foraminiferal ecology is beyond the scope of this manuscript, we abandoned any classification into specific depth habitats. For this reason, we exchanged the terms “deep dwelling” and “shallow dwelling” with the actual species names for the most commonly used species and summarize less commonly used species under “other”. We now consistently follow this categorization for all figures except for fig. 6 where the isotope ranges are broken down to the species level wherever possible. The categorization of the species names has been updated in the supplement. As also requested by Reviewer #2 (see comment #4 from Reviewer #2), we now state the wide geographic distribution and the mixed layer habitat as potential reasons for the common use of *G. ruber*, *T. sacculifer*, *G. bulloides*, *N. pachyderma* sin and added the following sentence to section 3.2:

“These species have a relatively broad geographical coverage and are considered as mixed-layer species in their respective environments (Schiebel and Hemleben, 2017).”

3) *The benthic foraminifer genera Cibicides and Cibicidoides are not generally epi-faunal. Only two species, Cibicidoides wuellerstorfi and C. lobatulus are epifaunal, and most of the many species of the genus are shallow infaunal. Some are even deep infaunal. Please refer to the books of Murray (e.g., 2008) and Schiebel and Hemleben (2017), in which the ecology of benthic and planktic foraminifers are explained, respectively.*

We agree. Complementary to the changed categorisation of planktic foraminifera (see response to comment #2 from Reviewer #1), we now distinguish the most commonly used *Cibicides/Cibicidoides* and *Uvigerina* genera, summarize the less commonly used species/genera under “other”, and

abandon any classification of benthic foraminifera as epi- or infaunal. Since the original species names are preserved in the individual netCDF files, follow-up studies can still apply a finer categorization if needed.

4) The term *Foraminifera* is a systematic term (not foraminifers, foraminiferal), which starts in upper case. By convention, only genus and species names are given in italic style; any addition to the name, such as *spp.* and *sinistral*, is not given in italic style, but in normal style.

We agree and changed “Foraminifera” to upper case and removed the italic style from the additions to the species names.

5) The genus name of the species *sacculifer* has changed from *Globigerinoides* to *Trilobatus* some time ago, and which may be mentioned at some place in the text, where *T. sacculifer* is discussed (e.g., on page 5, line 10).

We agree and changed “*Globigerinoides sacculifer*” to “*Trilobatus sacculifer*”. All names summarized under this species are listed in the supplement.

6) *Creseis* (*spp.* and *acicula*) is a pteropod, i.e., a pelagic snail, and not a foraminifer. This may be discussed in the text. However, given the very different nature (aragonite, not calcite) and ecology (fast swimmer over great water depths, not passive plankton), it may be easier not to present the pteropod in the atlas on *Foraminifera*.

We thank Ralf Schiebel for finding this important error. We excluded the two *Creseis* records from the data set and deployed the corrected collection on PANGAEA.