Biogeosciences Discuss., 4, S2745–S2747, 2008
www.biogeosciences-discuss.net/4/S2745/2008/

Biogeosciences Discussions

Interactive comment on "Calcium isotopic composition of high-latitude proxy carrier *Neogloboquadrina pachyderma* (sin.)" *by* D. Hippler et al.

D. Hippler et al.

Received and published: 11 March 2008

Answers to the referee comments

Dear referees and dear editor,

We would like to thank the referees for the careful and critical reading of the manuscript (BGD: ms-nr-2007-0128) dealing with the Ca isotopic composition of high-latitude proxy carrier N. pachyderma (sin.). Thanks also to the editor who offered the chance to prepare a revised manuscript for final publication in BG including the addressed issues of the referees.

We were pleased that both referees considered the manuscript as an important contri-

bution to the discipline of Ca isotopes, new proxy developments and palaeoceanography, which would be worth publishing after some minor to major modifications. A brief list of answers to the comments is headed below.

1) Material and Method section: We are aware of the ongoing debate about the different techniques measuring the Ca isotopic composition of biogenic skeletal carbonates, however in our opinion different analytical approaches are not likely to be the main cause for the controversial results. Some more analytical information has been added, although the method is sufficiently described in our cited references.

2) All regressions have been re-calculated and checked using the updated software package SP SS12. Correlation coefficients, number of samples and significance levels have been included and the description of data sets or subsets has been clarified.

3) The discussion of the core-top data is more detailed now. This has been done particularly in attempt to place the results of our study more into the context of previous work, which has been done on other species.

4) Most of the comments of the first referee particularly helped to link the manuscripts focus to a paleoceanographer's perspective. Along these lines we clarified the introduction and improved the discussion of the "cold-end paradox", which according to the first referee has likely to be seen as a phenomenon related to lower salinities. Furthermore, the raised issues on calcification depth (4.3) and interspecies comparison (4.4) section were considered in the revised version. More caution has been spent on the complexity interpreting oxygen isotope records and on the cross-check of calculated Ca-isotope-based SSTs and SSTs derived from oxygen isotope records. Furthermore, the particularities of species-dependent calibrations (e.g. the Ca isotopic composition of biogenic skeletal carbonates in relation to inorganic precipitates) have been elaborated illustrating how these differences could lead to future research projects.

5) The small comments and technical corrections of the referees were further considered. Grammatical and typing errors were revised and missing commas were intro-

BGD

4, S2745–S2747, 2008

duced. The reference Sime et al. (2007), which was fairly new, when submitting the manuscript has been included. Some phrases of the conclusion have been re-written, improving the clarity of the section. In table 1 and 2, the order of latitude and longitude has been changed and the clarity of the figures and their respective captions and legends has been improved.

We are looking forward to submitting the revised manuscript.

Kind regards, Dorothee Hippler

Interactive comment on Biogeosciences Discuss., 4, 3301, 2007.