

Interactive comment on “Pteropods from the Caribbean Sea: dissolution as an indicator of past ocean acidification” by D. Wall-Palmer et al.

Anonymous Referee #1

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The manuscript of Wall-Palmer et al. on pteropod dissolution discusses an interesting and modern field of research, and would be interesting to the wider community working on ocean acidification. However, Wall-Palmer et al. do not present a paper ready for publication in a scientific journal, and the manuscript is rather a collection of ideas and anecdotes. No data are presented on most of the signals discussed here. Out of four sediment cores presented, data (in a graph) are shown for only one. ^{14}C data and Argon datations which would support the age model of the core are not presented, and the core does hence not have a convincing age model. Dissolution Index data are not shown, and error bars are missing (figure 3). A scientific paper which is not supported by data should not be published in a serious journal.

Further comments:

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1. Modern age models should possibly refer to the LR04 stack (Lisiecki and Raymo, 2005). The age model shown here is not convincing at all.
2. The model shown in figure 4 is not discussed. It is not at all clear but it would be of utmost importance for the interpretation of the data where dissolution did occur. Could the dissolution patterns even stem from primary (aragonite shell production) changes (shell thickness) ?
3. Changes in the marine carbonate ion budget would need to be discussed (see papers of Broecker and Clarke). In which way would different water masses affect the dissolution signal in the core/s analysed ? If changing water masses at the core sites are not identified and discussed, the manuscript lacks any evidence. How would ash affect the dissolution signal ? Explain ! The side story about the effect of ash on pteropod shells is useless as it stands now. Either complete analyses are presented including chemical data (of the original ash, and the pore water chemistry) or the story should not be mentioned at all. However, when dropping the ash story not much would be left to the discussion.
4. In general, the papers of other authors mentioned in the manuscript are not really discussed but merely listed.
5. The paper of Barker and Elderfield (2002) is on the North Atlantic and not Southern Ocean.

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