

Interactive comment on “Selective preservation of organic matter in marine environments – processes and impact on the fossil record” by K. A. F. Zonneveld et al.

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1. This discussion paper draws attention to the disparate research foci that have the potential to contribute to an understanding of the parameters influencing organic matter preservation in the marine realm. For the reasons that they point out, this is a very important topic, but one which requires an appreciation of a wide range of scientific discipline.

2. The novel idea that the paper presents is the conjunction of these various fields of science. This should (hopefully) provide food for thought and spur on further research by providing insights into fields and recent advances in science that are potentially

C3241

relevant.

3. The “conclusion” reached in this discussion is significant, given my comments above.

4 – 6. It is somewhat difficult to assess the methods and assumptions without going back and thoroughly digesting the various papers cited (not an easy task, given the breadth of fields covered). It might be better to expand on the methods and assumptions relating to the unpublished data included in the paper. The paper is quite long as it is, however, so I would suggest cutting back on some of the detail and discussion within the different sections and providing a more succinct summary of these highly diverse methods and case studies.

7, 14. The paper deals largely with a review of the literature, including some very important recent advances in various fields- as such, it deals very well with the work of others. I have not noticed any substantial references missing in the material with which I am familiar, and I assume that the relatively large number of studies cited dealing with material with which I am not familiar is equally comprehensive.

8. The title is clear and representative.

9. The abstract outlines the topics to be discussed, which in a sense is a summary of the paper. It does not, however, outline the major points, which would be helpful.

10. The overall presentation is fairly well structured and clear, although I found the degree of detail and discussion within each section perhaps excessive for the generalist interested in the topic. I would attempt to reduce this in this paper if the goal is to allow everyone to appreciate the potential offered by the other fields.

11. Overall the language is fluent, but I made a number of small changes to improve the English and sentence structure on a hard copy and would be happy to send those along to assist the authors in revising the text. I will mention a few more major issues here: - Section 1: I suggest “synergistic” rather than “synergenic” - Section 1.1, sentence 1: I don’t think the authors mean that the FACTORS themselves are controversial, but that

C3242

the controversy is over their importance - Section 2.1: the authors refer to sporopollenin but not to dinosporin- this should be addressed, even if the authors consider these terms synonymous - Section 2.4, sentence 1: insert protozoans prior to metazoans, forams, for instance, are significant components of the benthic infauna, and I can't think of metazoans as small as a few μm in size.

12. I assume that formulae etc. are properly used, but cannot accurately judge outside of my field.

13. See comments above. I found all the figures useful, but founds some of them very small and thus overly busy, at least on my printout e.g. Figs 3 & 11. The core photo in Fig 11 did not reproduce well on my colour printer.

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