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Biogeosciences Discussions

Interactive comment on "Dinocyst assemblage constraints oceanographic and atmospheric processes in the Eastern Equatorial Atlantic over the last 44 ka" *by* William Hardy et al.

Anonymous Referee #1

Received and published: 9 June 2016

Please see attached documents

Please also note the supplement to this comment:
http://www.biogeosciences-discuss.net/bg-2016-148/bg-2016-148-RC1-supplement.pdf

Interactive comment on Biogeosciences Discuss., doi:10.5194/bg-2016-148, 2016.

Evaluation report on manuscript BG-2016-148 "**Dinocyst assemblage constraints on oceanographic and atmospheric processes in the Eastern Equatorial Atlantic over the last 44 ka**"

General appreciation

This manuscript presents evidence of orbital forcings on oceanographic changes recorded by dinocyst assemblages in a sediment core collected on the Congolese margin. The document presents new and important data on the linkages between Earth's orbital parameters (obliquity and precession) and the evolution of atmospheric continental and sea surface conditions at millennial timescale, and should definitely be published.

The manuscript is well written and was pleasant to read. There are a few typos and syntax error, but other than that it is written in relatively good English. It is clear, concise and straight to the point. If follows a logical progression, make use of the most up to date scientific literature on the subject, and uses adequate methodology to produce the data presented. The discussion is clear and well organized, and all the necessary arguments needed to draw the conclusions are presented in a well-organized and logical progression. All the figures are important for the comprehension of the text, but a few of them will need improvement with respect to the choice of colors (see below). All in all, a very good paper.

Specific comments

Figure 2. The axes of both Ti/Ca diagrams are drafted in pale grey, which is barely visible on the electronic version, much less on the printed copy. They should be changed to black.

Figure 4. It is a very colorful figure but some colors are inadequate: pale blue, pinkish, yellow and lime green over a white background are not legible. Please use more contrasted colors.

Figure 5. The taxa *Polykrikos schwartzii* is considered here as "hypersaline", despite the fact that Marret and Zonneveld (2003, p. 91) illustrate it as ranging between salinities of ~33 and ~36.5, with maximum abundances around 34.5-35. I do not consider this as "hypersaline". Also, the time period when *P. schwartzii* is abundant corresponds with the consistent presence of freshwater algae (figure 6), although in low concentrations. Could the authors elaborate on that?

Figure 6: Same comment as for figure 4 regarding the choice of colors.

Fig. 1.

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Dinocyst assemblage constraints on oceanographic and atmospheric processes in the Eastern Equatorial Atlantic over the last 44 ka

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Fig. 2.