

## ***Interactive comment on “Coccolithophore fluxes in the open tropical North Atlantic: influence of the Amazon river and of Saharan dust deposition” by Catarina V. Guerreiro et al.***

### **Anonymous Referee #3**

Received and published: 8 August 2017

This work provides new insights into the ecological influences on coccolithophores especially the importance of the low photic zone taxa in tropical environments. The research is of interest because there have been very few papers on the topic especially from tropical sediment traps. The paper uses some colloquial non-scientific language and rambles on a bit too much. When reading the title I thought that the work would mainly deal with the implications of Amazon River and Saharan dust input on the distribution of coccolithophores, but this topic only comes in the last few pages and there is precious little written about this in the introduction. I think either change the title to a more general one or really emphasize the Amazon and dust contribution from the start and reduce all the other material (which I would suggest because it would make for a

C1

much better read). One way to start would be to deemphasize the statistical aspect. I say this because the primary coccolithophore species reside in the lower photic zone while the environmental parameters are taken from second party satellite information which does not say much about the water column below the surface. Much of the statistics information are mostly broad conjectures. If the authors want to include the Statistica 13 data they should really state why it is so relevant. There should be much more information on the seasonal change in the water column. I don't think there is much insight from the satellite data. Much more interesting is actually the Amazon and dust story as the title suggests. The authors should move section 5.2.2 to the beginning of the discussion. Another issue is that the authors start by pointing out the similarity between the M2 and M4 trap data. Section 5.1 is dedicated to this. Later they go on at length about the differences (p20 lines 5-7 and figure 10). I suggest that the paper be reorganized and shortened, emphasizing the influence of the Amazon and dust.

Here are some editing changes that I suggest:

Page 1 line 17: North Atlantic did not collect –misplaced modifier please reword

P1 line 20: “were yearlong dominated” >dominated throughout the year

P1-33: “Still” > Nevertheless

P1-36: “seemingly similar” > not very scientific

P1-36: If they “differ greatly” they can't be “seemingly similar”

P2-2: “low productivity” throughout the water column or just at the surface?

P2-4: in “these” areas what does “these” refer to?

P2-9: “huge” amount ..huge is a colloquial term and not scientific

P2-19: “vastness” vague how about some numbers here

C2

P3-9: "partially" is an ambiguous word

P4-2: "Large volumes" give numbers

P4: "The upper water masses in the study area" I suggest a figure showing these water masses and the locations of the traps particularly because most of the important species are located in the LPZ.

P4-12: "Further down up" could be better stated

P4\_22: "19 October, 19 to & November 2013" please correct

P5-6: was "carried out"

P5-17: 'and to the total samples' > not clear

P5-22: "What about the other coccolithophore "deep water species"? there are more than 2

P5-23 3.3 Oceanographic and meteorological data. In table II the URLs are not sufficient. They should go down to the actual page locations that were used.

P6: too many "albeits"..and also one on p 9 ..some of them not accurately used.

P6-12; P6-13 try to use another word other than distinctive..which is not very scientific

P8 Fig 3: I don't see dashed lines for the Shannon-Weaver Diversity Index

P8 -23 are you sure about *R. sessilis*? Would like to see an image.

P9 fig 5 ..the color scheme could use improvement.. Hard to read because of the color choice  $\int$

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