

Interactive  
Comment

## ***Interactive comment on “Bioavailability of sinking organic matter in the Blanes canyon and the adjacent open slope (NW Mediterranean Sea)” by P. Lopez-Fernandez et al.***

### **Anonymous Referee #1**

Received and published: 19 February 2013

#### **GENERAL COMMENTS**

This manuscript presents a thorough study with some interesting results that mostly seem to confirm existing knowledge (see abstract).

The manuscript is a bit lengthy. In my specific comments I included some suggestions for shortening and streamlining some parts of the text.

Grammar and spelling: The style of writing includes quite some long and complex sentences that are sometimes difficult to read and distracting from the actual content. I suggest dividing such sentences into shorter sentences. In addition, it would be good to have the grammar and spelling checked by a native English speaker. I indicated

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some relevant points below.

References seems to be quite focused on studies in the Mediterranean Sea. I am not enough of an expert on this topic to judge if this is valid or not. I included a suggestion for some references for other systems below.

### SPECIFIC COMMENTS

- 18296, lines 14-17. Check grammar of this sentence.
- 18298, line 5: The meaning of “in diet” is not clear.
- 18298, line 9: What is the meaning of “conservative positions” ? > maybe replace “positions” by “estimates” or “theories” ?
- 18298, 8-24. This section of the introduction is quite focused on work done in the Med. It would be nice to include some references to other studies on biogeochemical changes in sinking organic matter in the ocean and/or degradation of OM in sediments. For example work by David Burdige, Stuart Wakeham, John Hedges, Cindy Lee, etc.
- 18298, line 27: Missing word after “ . . . change in.”.
- 18298, line 27: “To do this” is not very nice wording. How about “To this end”?
- 18299, line 8. Check spelling (“ . . . that occasionally which main discharge”)
- 18300: “swimmers” is not a familiar term for all readers (and not very scientific).
- 18300, line 16. Check grammar (“After ground to a . . .”).
- 18300, line 17: Add “(TMF)” after total mass flux.
- 18300, line 20: What does “116” mean ?
- 18301, line 2: “as such to” is not correct. In addition, these concentrations were not “estimated” but measured.
- 18301, line 23: Make clear that pigment concentrations were converted to total

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**BGD**

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phytoplankton-C concentrations. As written now, it may be interpreted as conversion to pigment concentration in carbon units.

-18303, section 3.1: This whole section and figure 2 seems quite a lot to just describe the environmental conditions, especially given that the manuscript is already quite lengthy. It would be more efficient and informative to focus on those aspects that are directly relevant for the interpretation of the main results from this study.

-18303, line 4: Insert “that” between “meteorological” and “occurred”.

-18304, lines 2-5. Here it says that some of the data are already presented in another manuscript that has not yet been published (“submitted”). I suggest to clearly explain the division of data and focus between the two papers.

-18304, line 10: I do not see variation coefficients in Fig 3.

-Sections 3.2 and 3.3. These sections contain quite some “dry” description of results that are already presented in the figures. There is no need to do this, especially given that this manuscript is already quite lengthy.

-Section 3.3: What I found missing is a figure showing the (changes in) relative composition of the OC pools. This is presented in the text in sections 3.3.1 and 3.3.2 but it would be nice to see it presented graphically. This could just be an additional panel in figures 4 and 5.

-18307, line 24: Add “t” to “important”.

-18308, line 10: “Thence” ?

-Section 4.1: This rather long section may be split into two separate sections. First a general interpretation of results and then a section on the consequences for the animals.

-18310, line 10-12: Check grammar (“although received”).

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-18310: What I find missing here in the discussion of the quality of the OM is assessment of the composition of the material in terms of lipids versus carbohydrates versus proteins, and the related N content (versus C) of the OM.

-18310, line 28: Check spelling and grammar.

-18311, line 4: Check spelling and grammar.

-18310, line 13: “thence” is not a word. What does “differential modalities” mean ?

-18313, line 4: Check grammar.

-18313-14, lines 23-15: This section would be more at place at the start of the discussion because it really helps the basic interpretation of the results. This should be done before going deeper into the various aspects of the Discussion rather than at the end.

-18314, lines 19: “in front of” is not really nice wording.

-Figure 1: The small globe is not very informative. A map of the Mediterranean Sea indicating the location of the canyon would be more useful. The locations of the two mooring stations are not very clear. A white text box with arrow (or similar) would be more clear.

-Figure 2: Not sure if it is necessary to show all this information. It does not seem to be of key importance for interpretation of the results (also see comment to section of Results).

-Figure 3: Define % of what? is displayed (of TMF?).

-Figures 4 and 5: It would make more sense to merge these two into one figure as they show the same information for the two sampling sites. The yellow line and symbols for total lipids are difficult to see. Legends in the figures are not necessary.

-Figure 6, caption: Is there a word missing between “pairwise” and “of organic ...” ? Should “compound” be “contents” ?

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