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Interactive comment on “Settling particle fluxes across the continental margin of the Gulf of Lion: the role of dense shelf water cascading” by C. Pasqual et al.

Anonymous Referee #2

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I reviewed the manuscript by Pasqual et al on cascading in the Gulf of Lions. I believe the paper merits publication in Biogeosciences after relatively easy issues are revised. This work adds to a number of recently published works by some of the authors, who are building an extensive, very informative history in this area of the Mediterranean. This may be a reference for other studies elsewhere, on top of actually providing a number of clues for understanding this region of the Mediterranean.

I list here a number of aspects the authors may want to revise for the final version of the paper.

1. Title: Not entirely sure it explains what the authors discuss in the manuscript, espe-

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cially in terms of composition of the particles.

2. Introduction: I find it too generic and, having a long list of previous works on the subject in the same region, could be more focused. For instance, P7899L23-26: "important role" for what?; P7900L04: "quantitative and qualitative impact...": should precise the objectives, explain about the composition of what, which parameters, in terms of?

3. P7900L22: export from where to where. I do realize this can be understood from the context, but here and elsewhere the language is too vague and the reader could be guided a little more.

4. Results: Suggestion; All the information is in the manuscript, either in Figs or Tables. However, the complexity of the system for those not familiar with the area of study may point to the need of trying to add a paragraph synthesizing the main issues/results

5. P7905L27: Presumably?

6. P7906L10-20: The description of the data is fine enough, but this is an example of a passage a little difficult to follow. Any effort to simplify it would be appreciated.

7. P7908L12-25: several comments here: "material sedimented"? Please precise. Next the authors refer to "material settling": would it be "transported"? Then the authors refer to "mass accumulated on the seabed by DSWC" twice in the paragraph. I am not sure I follow this and it is known as explained it here. Could data on this respect be provided here?

8. P7908L25-30: the sentence "the impact of..." is too vague, and the authors should justify how, in what terms and what type of ecosystems.

9. P7909L15-20: I am not sure I follow the argument here

10. P7911 after 5.1.1: I miss commenting on the source; if large cascading occurred in the previous year, would that affect the amount and composition/quality of what is available the following year? Can the authors compare the data and tell?

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11. P7912L2: which year?; L15: “vertical settling”? Isn’t this too simple?

12. P7913. I don’t see that the statement on sedimentation is supported by the data (see above for previous comment on this). It does make sense, but data should be provided. Also, the discussion about OM export from the photic zone is somewhat based on pre-conceived schemes in that export from the PZ is transferred to depth by vertically settling particles. The authors are well aware this is not this simple, less so in this area. The way the subject is addressed here is not solid enough to allow the discussion in section 5.2, which could also be expanded. Also, it is not clear what is meant in L18 by “visual knowledge”.

13. P7915, last sentence in the conclusions: isn’t this a little too generic?

Interactive comment on Biogeosciences Discuss., 6, 7897, 2009.

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