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Biogeosciences Discussions

Interactive comment on "External forcings, oceanographic processes and particle flux dynamics in Cap de Creus submarine canyon, NW Mediterranean Sea" *by* A. Rumín-Caparrós et al.

Anonymous Referee #2

Received and published: 18 February 2013

The paper describes two dense water cascading events in the Golf of Lion during 2009-2010 and 2010-2011 in the Cap de Creus canyons. The different atmospheric and oceanographic conditions are compared for the two events, as well as the resulting sediment transport that resulted. Whereas this phenomenon has been described in many articles before (Bethoux et al. 2002, Heussner et al. 2006, Palanques et al. 2006, Hermann et al. 2008, etc.), this is an interesting study that is worth being considered for publication in Biogeosciences after minor revisions.

Specific comments: - In English, the correct appellation is "Gulf of Lions"

- The months November to May-June do not accurately describe the winter months,

particularly in the Mediterranean Sea. The authors should use "winter-spring" or another appropriate notation.

- Another figure is needed in order to include all locations and rivers mentioned in the manuscript. Readers who are not familiar with the Gulf of Lions cannot follow the discussion concerning the rivers discharges.

In the abstract:

- The Gulf of Lions needs to be mention to locate Cap the Creus (line 8).

- The current-meters are mentioned here (also line 8) whereas only one worked during the entire study as mentioned later in the manuscript.

In the introduction:

- The term GoL should be defined as it is the first time it is mentioned.

- A reference in needed p.18574 line 29.

In the Ssudy area, line 11: break (without e)

In material and methods:

- Reference needed lines 9 to 14 to justify the method

- It is impossible to locate all the rivers mentioned. In particular, the reader must be able to locate the Rhône River. They need to be included in figure 1 or in another figure.

In the results:

- The correct term is "cumulated", not "accumulated".

- This section needs to be reconstructed. The external forcings are described but do not refer to any figures. In addition, the numbers mentioned in the text do not correspond to the figure 3 (p. 18579, line 15 and 16).

- P.18580 line 17: the same terms need to be used in the text and in the figures: downward total mass flux instead of downward particle flux. The abbreviation TMF should also be defined here.

- As mentioned before, the current-meter did not work at CC1000. However, it is neither stated in section 4.2 nor in figure 3.

- P. 18581 line 1: the considered station is not indicated.

- P. 18581 line 13: needs to be rephrased.

- P. 18582 line 8: this statement is not true for 2009-2010. Siliclastic relative abundance is almost the same in both depths. This term should also be the same in the figure and in the text (lithogenics in figure 5).

- P. 18582 line 19: this statement is not true for CC1000. Also, the important decrease from December to April 2011 needs to be mentioned and a plausible explanation should be stated.

- P. 18584 line 2: this could actually be explained by the so-called winter months by the authors. Compared periods need to be the same.

- P. 18588 line 24: indicate La Fonera canyon on a map.

In the figures:

- 1: add all rivers and La Fonera canyon.

- 2: cumulated, not accumulated

- 3: what depth was the temperature recorded?

- 4: include rivers and Cap de Creus in all maps

Technical corrections:

- Mixing of past and present makes some sentences confusing at times

- The correct word is “especially”, not “specially”

- The manuscript should be revised by a native English speaker.

Interactive comment on Biogeosciences Discuss., 9, 18571, 2012.