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Interactive comment on “Upper layer current variability in the Central Ligurian Sea” by P. Picco et al.

Anonymous Referee #2

Received and published: 3 May 2010

The manuscript presents near-surface current data collected from an ADCP moored in the Ligurian Sea. The data consists on 6-month time series, coupled with meteorological data measured at the same location. The description of hydrological and meteorological conditions is eventually enhanced with a spatial and temporal statistical analysis of the currents, and the correlation with wind is analyzed by means of a simple 1D Ekman model.

As a general comment I found the paper very difficult and painful to read and follow. The paper is unstructured, and the leading thread is difficult to find. Important informations like the period of measurement and the duration are splitted among the text. Figure and table captions are incomplete, and are not advisedly referenced in the text. The data is partly listed in the text with very few figures to attest them, and the authors concluded

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on physical processes without any deep analysis, explanation or comparison with other data sources. In my opinion the manuscript is not suitable for publication in the present form, and it should go through major revisions.

Specific comments :

- 1) In the abstract and in the introduction, the manuscript is presented as a preliminary study to the LASIE07 experiment. I cannot see any link between the data presented here, and the experiment. Moreover the given reference Teixera J., 2007, is a restricted website area which I couldn't access. The periods are not the same (winter 2003 for the data presented in the manuscript, (summer , winter?) 2007 for LASIE), and no explanation on the LASIE experiment are made in the manuscript. I think the authors should either remove the LASIE reference, or add some comparison with the data obtained during the experiment.
- 2) Section 3, first paragraph : The seasonal evolution as well as the structure description should go along with figures, properly described. References to dynamics in the region should be added.
- 3) Page 451, EOF analysis : Please add some equations describing the EOF method applied to your data. From my knowledge, the modal spatial structure should be analyzed in parallel with the coefficient time series, while the authors only show and comment the vertical structure.
- 4) Section 4.4 vertical velocities. Please explain from what you conclude that the vertical velocities are correlated.

Minor comments :

*In the abstract: Add the dates of the experiment along with the duration

*Section 1, line 15, add the end date or the duration

*Section 2, Instrumentation may be a more appropriate title?

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*Line 3: change "It was composed" in "The mooring was composed"

*Page 450 line 18 : " both wind speed and direction showed.. "

*Page 452, line 21 : " corresponding period "

*Page 456, line 2...any conclusions about the Ekman model analysis ?; line 12 : "common to both wind and second mode currents ", add the reference to figures.

* Section 5, line 27. Please conclude on the assertion you are making: " complex correlation coefficients .."

*Table 1 : -68, -250 m

*Table 2 : The difference between intensity and velocity magnitude should be detailed, as well as the maximum values, about which no reference is made in the text.

*Table 3 : Compex correlation coefficient of what ?

*Figure 1 : The SST image is dated 15th of July, which do not correspond to the discussed experiment. Additional images should be added in the analysis and for comparison.

Interactive comment on Ocean Sci. Discuss., 7, 445, 2010.

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