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Ocean Science
Discussions

Interactive comment on "Surface circulation in the Eastern Mediterranean using drifters (2005–2007)" *by* R. Gerin et al.

Anonymous Referee #3

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GENERAL COMMENTS:

The paper makes a significant contribution to the knowledge of surface circulation in the Eastern Mediterranean. The drifter data set used is unique and robust enough to draw some conclusions for the time period of study for some of the sub-regions of the area. The authors need to be careful however not to draw too many conclusions in regions or times where data are scarce, or imply that these data represent some kind of mean pattern. That would require a more rigorous study in combination with a dedicated remote sensing and modelling analysis and possibly another in situ data set over the same period. While the paper's results were interesting, the description of the various features was difficult to read, and many times the punch line was diluted as a result. With the proper clarifications and simplifications this paper could improve

greatly, since the data it contains are so powerful. I would encourage the authors to follow up this observational paper with a joint study with numerical and remote sensing components and even perhaps other in situ hydrographic data.

SPECIFIC COMMENTS:

A couple of scientific issues mentioned above need further explanation. One is the care that must be taken in interpreting scarce data without a clear tie-in to other data sets. To stay within the scope of this observational paper, this could be limited to a few remote sensing images and an independent source of in situ data that could add credibility to the circulation that emerges. Although a great data set, there are still (as the authors state) many gaps and many pitfalls in interpretation. Another issue is that of Atlantic Water. It is assumed that any surface current towards the east transports AW, but no evidence of water properties has been given. We do not have information on water mass transports from drifters directly. Some connection to other observational or model studies that show to what extent a surface current in this region represents the subsurface flow of AW would be an excellent addition.

TECHNICAL COMMENTS:

It is not valuable to list all the corrections at this stage, but there are a number of places where English was not used properly (veins, informations, superficial, individuated, well evidenced, comforted by), Also text was confusing in some places. Most critically, the results and discussion sections were too similar, both getting bogged down in cataloguing features and even individual drifter tracks. The first two paragraphs of the discussion could be scratched and the following 3 or so trimmed down to one by not repeating results. This only leaves about 3 paragraphs, which is not nearly enough make important conclusions (although, as mentioned without another source of data, definite conclusions are difficult to make). At least there should be a stronger tie to the literature mentioned in the introduction, and a few references could be added. (such as Ozsoy/Hecht for POEM data, Melanotte-Rizolli/Bergamasco, Wu and Haines, Za-

vaterelli and Mellor, Zodiatis et al. for circulation studies, and perhaps an XBT study, Manzella et al.) There are a few places where broad statements are made that don't help much the paper, like "data set is widespread" and "interactions between eastward slope current and eddies are well-evidenced". They could be removed or re-worded to say something with more impact. Finally, it would help if the QC method and method for calculating EKE and MKE were briefly stated. Presuming they are relatively simple, it helps the reader to see them (especially when the reference is a CD).

Interactive comment on Ocean Sci. Discuss., 6, 525, 2009.