

## ***Interactive comment on “Eddy measurements, coastal turbulence and statistics in the gulf of Lions” by J. M. Redondo et al.***

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### **1 Appraisal**

This discussion paper matches the scope of the Ocean Science publications very well. It describes methods on how to use satellite measurements to identify, classify and investigate ocean eddies. A systematic application of these techniques to the area studied and more generally can be a powerful tool to extract dynamically important features (and their spatio-temporal evolution) using remote sensing.

The analysis methods applied to the data appear to be valid and appropriate, with sufficient explanation and references to the literature.

C15

The results presented are valid, and mostly clearly justified by the presentation of the results, although I have the feeling that the results have not been exploited as much as they could have been to reach substantial conclusions.

The main results are

- the demonstration of the validity of using SAR images for eddy detection and analysis,
- a correlation of the eddy statistics with the local bathymetry, in particular the submarine canyons
- a correlation of the eddy statistics with the local Rossby radius which is a function of the local density differences and thermocline depth (this is explained in the text but not sufficiently demonstrated in the figures)

### **2 Comments**

It would be interesting to see the link between the Rossby radius of deformation and the eddy radius demonstrated in a graph.

The summary map shows the eddies distinguished between cyclonic and anticyclonic. The discussion itself does not analysed in great detail; could this be elaborated in any way: is there a reason for the difference in the number of vortices? Is there a difference in the distributions (size, anisotropy, orientation) between cyclonic and anticyclonic? In the discussion of the size, the authors state that there is a seasonal difference as the Rossby radius of deformation changes over the seasons. Might it be instructive to distinguish the summer and winter eddies in the summary map?

The authors have made some suggestions for location or alignment of eddies with local features (canyons and currents). Again, could that be demonstrated in a graphical way?

C16

The authors refer to a standard (hyperbolic) distribution consistent with (at least one – but which?) of their observed distributions. It would be good to see a bit more detail on this.

Please also note the supplement to this comment:

<http://www.ocean-sci-discuss.net/10/C15/2013/osd-10-C15-2013-supplement.pdf>

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