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Interactive comment on "Enhancing the accuracy of automatic eddy detection and the capability of recognizing the multi-core structures from maps of sea level anomaly" *by* J. Yi et al.

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I thought the paper was good overall. My understanding is that the authors' intention was to use the strengths of a variety of methods in order to counteract some of the same methods' weaknesses, which to me seems like a sound strategy. Hence I read this paper favorably.

I suppose I do feel the need to comment on the let's say epistemological issues at play. The question "what is an eddy?" may not be answerable, at least not in a complete or well-quantified way, and at a certain point you just have to accept that and move on. Hence, in a similar vein to the other reviewer, I think that comparisons of your method

against a "ground truth" may be overstated, in that there may not be a reliable ground truth. This isn't to say that your method is bad or that this paper shouldn't be published; quite the contrary, I like it for theoretical reasons, and the fact that it's trying to integrate itself into what I understand as the current consensus on the subject.

That being said, if you're going to do detection rate comparisons, I'd personally much rather see ROC curves. These are just curves that show how changing a detection parameter (for example, Okubo-Weiss thresholds or SSHA thresholds) changes the true positive rate on one axis, and the false positive rate on the other. I suspect this would give a fairer view of different methods, since it wouldn't bias them as strongly based on the threshold value chosen.

Finally, and this isn't intended really as review commentary on this paper, but as further discussion, I guess as a bit of gesturing at how I'd address the "what is an eddy?" problem, I think the answer is to move past detection on to studying eddies functionally. After all, what people are interested in with the question of eddies isn't what they look like or what detection rates you can get with an algorithm, but the question is what they do. I suspect that, if we really want to know what eddies are, the proper way to address it is by looking at what they (in the sense of things that are incontrovertibly eddies) do, then looking for and comparing against phenomena that do the thing we're looking for.

Interactive comment on Ocean Sci. Discuss., 10, 825, 2013.