

Review d'Alexandre L'Her

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1 Overall content

1. Is the overall purpose of the study and /or central question clear?

Yes the overall question is really clear, it is well announced in the Introduction part: "The goal of this study is to find out if the eddies formed at the capes of Kamchatka are the ones that merge with the KE [Kamchatka Eddy]."

2. Does the interpretation of the findings answer the overall question of the paper?

In my opinion, the interpretation of the findings does not clearly answer the previous overall question. In the part "Trajectories during winter", the KE is mentioned only once: "On their way, they [the particles] travel through the KE that is situated around 50°N, 158°E and then exit it from the south and southwest". But we do not really have further conclusion about whether or not they contribute/are part of the KE.

In the part "Trajectories during summer", the answer to the overall question is much clearer and straightforward. However, in the sentence "The particles seeded in the middle cape (Figure 3.2b) and the southern cape (Figure 3.2c) are scattered all over the area of the EKC. This shows that there is a strong eddy activity south of the tip of Kamchatka.", the link with the KE is lacking (in my opinion). I have a pretty similar comment for the "Velocity of the particles" part. This part gives information about whether or not particles are drifted by eddies, but the KE is not mentioned. The link between the drifting eddies and the quasi-stationary KE is lacking.

3. Is every paragraph and sentence in the paper relevant to the overall question?

4. Are there portions of the text that could be omitted?

The entire goal of the "Velocity of the particles" part is actually confusing me a bit. But I feel like we are focusing a lot on how the particles move (either within the EKC, or in anticyclonic eddies), and less on whether or not these particles will merge with the EK. It is relevant to know if the particles are moving in an eddy or with the EKC current (because the goal is to know if eddies will merge together). But the link with the EK is lacking to me.

5. Is the overall organization of the paper clear and effective?

Despite my previous comments, the overall organization is really clear and effective. The different parts are relevant to me. Only some link sentences with the overall goal would be appreciated for my own understanding.

2 Individual sections

1. Does the title adequately represent the content of the paper?

As the goal of the paper seems to be a bit more about the EK, I would try to add it somewhere.

2. Does the abstract clearly and concisely summarize the paper and state the main results? Does it contain all needed information (context, need, task, object, findings and conclusion)?

The abstract section well summarizes the task/work, the results/findings and the conclusion. However I would add one or two sentences for the context and the needs.

3. Does the introduction provide enough context to the readers? Does it state the need for the work? Does it state clearly what has been done to address it?

Here the introduction gives a really clear context (area, physical properties etc.). But to me, the only thing missing is the "need" paragraph/sentence (a transition between the context and his work).

4. Does this paper put the progress it reports in the context of existing published work? Is there adequate referencing and introductory discussion?

There are references about some previous work done in the area. But his work is not really introduced/linked with existing published work.

5. Are the material and methods used in the study clearly explained? Can you point out what is special, unexpected, or different in the approach compared to existing published work? Does it contain too many technical details?

The Material and Methods part is short and clear, it is really easy to read. There is not too many technical details. What is new is the modified algorithm. However it is not clear from which work this algorithm comes from, so what exactly is new in the method.

6. Are the results sections(s) clearly and concisely written? Are there logical and smooth transitions between sections, subsections and between paragraphs?

Results are clear and concisely written, following the figures and tables. Paragraphs/sections are coherent together, in a very understandable order. There is not really "smooth transitions", but we actually don't need them in my opinion.

7. Does the conclusion clearly state the most important outcome of the work? Does it address the questions stated in the Introduction? Does the conclusion just summarize the results or does it interpret the findings and explain what they mean?

The conclusion states the most important outcome of the work (particles trajectories, differences between winter and summer). It interprets those findings (anticyclonic eddies merging with the EK, particles mixing for instance).

Nevertheless, to me there is still a little asymmetry between the question stated in the introduction "The goal of this study is to find out if the eddies formed at the capes of Kamchatka are the ones that merge with the KE.", and the results/findings which are focused on "how are the particles moving (current/eddy) South?". This is not really mentioned in the Introduction.

8. Are the interpretations and conclusions adequately supported by the evidence presented? That is, are the assumptions valid, is the methodology sound, is the evidence adequate, and do the conclusions logically follow?

Yes the scientific content is good to me. The methodology/assumptions sound valid, the conclusions seem logical. The only supplementary information I would like to know by reading this paper is "How long does it take for the particles drifted from the northern cape to go to the EK location?". Because maybe these particles stayed in the EK 50 days and it took them 150 days to get there. Whereas the particles coming from the two other capes arrived quickly in the EK, and left it after the same period as the northern ones. But this limitation is stated by: "For a better understanding, we should study in a future work the time spent in the KE by the particles in function of their initial position".

9. Are all parts of the text, references, graphics and tables necessary for the new results and main points to be understood?

All the paragraphs, figures and tables are important in my opinion.

10. Are the graphics and tables clear and their captions self-explanatory?

Yes they are very clear and self-explanatory to me. But I would maybe add clearly the location of the EK.

3 Sentences and wordings

1. Can you find grammatical mistakes?

A few, but not a lot:

- "behavior" instead of "feature" (for instance) in the Introduction
- "Its eastern coast, which main features are three capes..." I think is not correct. Without being totally sure, I would replace "which" (it sounds really strange to me) by "whose"
- "Tipically" instead of "Typically"

2. Can you point to sentences that loose you (too long/complex) and do you have suggestions for improvement?

I would change the structure of a few sentences:

- "Situated in the most Eastern part of Russia, southwest of the Bering Straight, the Kamchatka peninsula is located in the western part of the Pacific Ocean." → "The Kamchatka peninsula is located in the most Eastern part of Russia, Southwest of the Bering Straight in the Western part of the Pacific ocean." for instance

- "A more exhaustive study could be done to look mathematically for looping and non-looping trajectories, this would clearly show us which particles get trapped in eddies."

I would do two sentences (and remove the "clearly"): "A more exhaustive study could be done to look mathematically for looping and non-looping trajectories. This would show us which particles get trapped in eddies."

- "It is formed almost every year at the beginning of summer ; and is quasi-stationary - compared with the other eddies that are advected southwestward by the EKC."

I would do two sentences : "It is formed almost every year at the beginning of summer. It is quasi-stationary compared with the other eddies that are advected southwestward by the EKC."

3. Are generally the action in verbs, characters in subjects and subjects near verbs? Can

you find counter-examples? Can you point out misused nominalizations?

Generally everything works well. However, sometimes some subjects are missing. I think it is correct in French to omit subjects sometimes, but not in English:

- "It is formed almost every year at the beginning of summer ; and is quasi-stationary - compared with the other eddies that are advected southwestward by the EKC." is lacking a subject before quasi-stationary

- "...and then exit it from the south and southwest."

4. Is the writing cohesive? Does it flow well? Is the part of the sentence that links to the previous sentence at the beginning or the end?

I don't have a lot to say here. The writing is cohesive and flows well.

5. Are the paragraphs coherent? Do the first and last sentences of paragraphs match? Can you find counter-examples?

Everything is pretty coherent. Each paragraph has its importance and its particular topic.

6. Is there an abusive use of passive voice?

The use of passive voice is not abusive at all. But just in the first sentence he could have used the active voice: "In this work, the positions of Lagrangian particles were integrated in the daily AVISO geostrophic velocity fields around the Kamchatka peninsula." -> "We integrated the daily AVISO geostrophic velocity fields around the Kamchatka peninsula to get the Lagrangian particles positions" for instance.

7. Can you find a lot of useless words/phrases?

Just a few, like "In/for this work/study" in different paragraphs, "mainly" in the Introduction, "quite" in the first line page 4, "much" in "much less scattered" page 3.

8. Can you find complex words that could be replaced by simpler ones?

I didn't find any.

9. Can you find too complex subjects?

It was not specifically subjects, but I found some complex constructions : "the trajectories of the particles" (particles trajectories), "a scaling of the maximum value of the velocity" (a scaling of the maximum velocity value, for example)

10. Can you find inadequately used adverbs/ repetition/ excessive hedging?

Some repetitions of "work/study" and "in particular".

11. Is the use of tenses (past/present/future) adequate?

The tenses are well used. There is only one mistake I've seen in the abstract. He used both present and passed for his findings : "found" and "show". I would have used only the passed tense.