

Review of *Biogeosciences* manuscript **bg-2019-353** of Audrey delpech et al. entitled “Influence of oceanic conditions in the energy of transfer efficiency estimation of a micronekton model”

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I have read the second version of the manuscript, and I consider that the authors have responded appropriately to my original review. Well done. I only have the following minor comments, which are mostly technical corrections.

### **Abstract**

- 1) To only focus on the main results of the study, I would suggest to remove the last sentence: “The results are in terms of...”.

### **1. Introduction**

- 1) l. 50: change “[1, 6]” by “{1, 6}”.
- 2) l. 62-64: I would suggest to rephrase these two sentences.

### **2. Method**

- 1) 2.1 SEAPODYM-MTL and its configuration => The SEAPODYM-MTL model
- 2) l. 81 “models” => “simulates”
- 3) l.109-110: I would also suggest to remove that sentence.
- 4) l.139: “This latter...” => The latter could lead to under (or over) estimate some identified regimes.
- 5) l.141: This sentence needs to be rephrased.
- 6) 2.3 OSSE system configuration => your subsections (2.3.1 to 2.3.3) are very short. I would suggest here to merge them together without separating by subsections.
- 7) l.149: “The implementation of...” => To perform realistic OSSEs, a rigorous protocol needs to be followed.
- 8) l.178: might change to “In the framework of OSSEs, we perform experiments using different sets of synthetic observation points (Ne = 400)”.
- 9) l.183-186: a bit confusing, might need to be rephrased and further detailed (e.g. what do you mean by close enough?).

### **3. Results**

- 1) If you want to use “Exp.” as an abbreviation for “Experiment”, you need to explicitly say it.
- 2) l. 238: “are used for” => “evaluate the impacts of the bloom index...”.
- 3) l. 269-272: a bit confusing, might need to rephrase that paragraph and better explain what you mean by “Experiments with such cross-correlation” here.
- 4) l.290: “The same kind of” => “Similar”.
- 5) l. 311: “associated to” => “associated with”.
- 6) l.331-332: might change to “...using the transects from the PIRATA cruises, and those from the British Antarctic Survey (BAS) cruises during the 2013-2015 time period (see Figure 7)”.

- 7) l. 337-338: “Also, whatever the perturbation...” => need to be rephrased
- 8) 4.1 “... in term of observability” => “... in terms of observability”
- 9) l. 396-398: too long, need to be split into two sentences.

#### **4.3 Limitations and perspectives**

- 1) l. 410: “The realism of this approach is questionable...” sounds too dramatic, you downplay too much your approach here; I would rather say something like “Our idealized approach...”

#### **5. Conclusions**

- 1) Using both “modelling” and “modeling”; you need to either stick with the UK or the US spelling.
- 2) l. 439: “observation” => “observations”.
- 3) l. 441: this is not exactly the main objective of traditional OSSEs, which is to assess the impact of assimilating synthetic data; saying “...designed to correct outputs of operational models” might be misleading here. I suggest to change that sentence to something like: “...designed to estimate the impact of an observing system from the difference in the errors made by each experiment (e.g. Fujii et al., 2019)”.
- 4) l. 442: “to search for” => “to determine”.
- 5) l. 457: “in term of” => “in terms of”.