Geoscientific
Model Development
Discussions

Interactive comment on "Error assessment of biogeochemical models by lower bound methods" *by* Volkmar Sauerland et al.

Anonymous Referee #2

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General Comments

My background is a marine ecologist and marine ecosystem modeller focussing not only on the plankton community, but also investigate higher trophic levels. I am familiar with the outputs of biogeochemical models, which can be used as inputs for marine ecosystem models that include higher trophic levels and larger size classes.

I agree with the first reviewer that this exercise is valuable to reduce run times for biogeochemical models. Unfortunately, much of this manuscript was beyond my knowledge, and I am not able to evaluate it for its technical aspects. I agree with the first reviewer that the introduction needs to be overhauled and would also caution against a high rate of self-citation.

I suggest that this manuscript be sent out to another reviewer more closely aligned with this field to review the details of the approach.

Minor Comments

Abstract - The last line of the abstract does not communicate the key result, were you able to improve a model fit for the Baltic? Do you expect that this will extend to other regions?

page 1 line 7 - trapped in local minima

pages 1 line 24 to page 2 line 3 - it would be better if this list was incorporated into the body of the paragraph. Could always write a list in a sentence using first, second, third, etc.

page 2 line 25 - suggest removing 'Anyway'

The last two sentences of the introduction are unnecessary and can be deleted

page 4 - I agree with the other reviewer that it would be good to have descriptions of these model fitting metrics as well as indicating the strengths and weaknesses of each - also why are they not numbered while the following equations are?

page 4 lines 17-18 - this is now the third time this statement has been made, unnecessary

Figures - many of the figures are missing axis labels

page 15 line 1 - satisfactorily

page 15 line 3 - 'until the obtained lower bound does hardly increase anymore' to until the obtained lower bound hardly increases anymore.