

## ***Interactive comment on “3D dynamics of the Southeastern North Sea, effects of variable resolution” by Ivan Kuznetsov et al.***

### **Anonymous Referee #1**

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This manuscript provides a validation and an evaluation of an unstructured ocean modelling configuration that is applied to the German Bight and its vicinity. The article tries to focus on the advantage of unstructured ocean modelling, and how the resolution affects the quality of the results. The idea is good, although I believe the article in its present state would perhaps fit better in a journal such as GMD because an important part is devoted to validation more than to this specific point. So I think the manuscript could be published in Ocean Science after major revision, but I would suggest to re-design it if possible. Below are ideas on how this could be achieved.

1/ First the model description part should be made shorter and more concise. There are too many sub-sections in Section 2 that could be merged, and the model features should be summarized so that the description is quicker to read and gets to the point.

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2/ The validation part is way too long, it is very descriptive. What readers want to see is a quick assessment of what works and what does not work so well in the model.

3/ Section 4 is where the manuscript gets more interesting: it is when one sees the influence of the resolution and what getting at high resolution can achieve or not. The description validation sections were too long, but this one is way too short and just provides a quick assessment of the influence on cumulated sea level values. I suggest to expand this part which is the most interesting and provide an analysis on how resolution and wetting drying affects the comparison with observations etc. . .

General comments:

I had started the manuscript review with some remarks about the language, but stopped after 2 pages because there were just too many. I strongly recommend a professional native speaker to check the manuscript before submitting a revised version.

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