

Review response:

Manuscript Evaluation Criteria

Scientific Significance:

Does the manuscript represent a substantial contribution to modelling science within the scope of Geoscientific Model Development (substantial new concepts, ideas, or methods)?

Good

Scientific Quality:

Are the scientific approach and applied methods valid? Are the results discussed in an appropriate and balanced way (consideration of related work, including appropriate references)? Do the models, technical advances and/or experiments described have the potential to perform calculations leading to significant scientific results?

Excellent

Scientific Reproducibility:

To what extent is the modelling science reproducible? Is the description sufficiently complete and precise to allow reproduction of the science by fellow scientists (traceability of results)?

Good

Presentation Quality:

Are the methods, results and conclusions presented in a clear, concise, and well-structured way (number and quality of figures/tables, appropriate use of English language)?

Good

Access Peer-Review & Interactive Public Discussion (GMDD)

In the full review and interactive discussion the referees and other interested members of the scientific community are asked to take into account all of the following aspects:

1. Does the paper address relevant scientific modelling questions within the scope of GMD? Does the paper present a model, advances in modelling science or a modelling protocol that is suitable for addressing relevant scientific questions within the scope of EGU?

Yes. The paper present a modelling protocol that is suitable for addressing relevant scientific questions within the scope of EGU.

2. Does the paper present novel concepts, ideas, tools, or data?

Yes. The paper present novel tool, a new ocean-ice model for the Baltic Sea.

3. Does the paper represent a sufficiently substantial advance in modelling science?

Yes. The paper present a operational forecasting hydrodynamic model of ice model.

4. Are the methods and assumptions valid and clearly outlined?

Yes

5. Are the results sufficient to support the interpretations and conclusions?

Yes. The present model is a suitable tool for studying the annual, seasonal, monthly and daily variability of environmental parameters in the southern Baltic Sea. It can therefore be applied in the forecasting of ecological changes in the Baltic.

6. Is the description sufficiently complete and precise to allow their reproduction by fellow scientists (traceability of results)? In the case of model description papers, it should in theory be possible for an independent scientist to construct a model that, while not necessarily numerically identical, will produce scientifically equivalent results. Model development papers should be similarly reproducible. For MIP and benchmarking papers it should be possible for the protocol to be precisely reproduced for an independent model. Descriptions of numerical advances should be precisely reproducible.

Yes.

This paper presents an integrated, operational model of the Baltic ecosystem – the hydrodynamic part with the ice component.

My suggestion - add the model equations plus parameterization as an appendix.

I agree with the authors that in the case of the Baltic Sea, kpp is the best parametrization of vertical mixing, but in the paper - lack of description of the kpp.

We have added some sentences that describes kpp parametrization.

7. Do the authors give proper credit to related work and clearly indicate their own new/original contribution?

Yes. This hydrodynamic model consists of ice model CICE as an active component - weakly signalized by the authors.

Incorporation of the CICE 4.0 model into the regional POP 2.1 model is the first application of such an advanced ice model for the Baltic Sea.

The results of simulations, with the ice parameters, of 48-hour forecast are presented on the website - weakly signalized in this paper.

8. Does the title clearly reflect the contents of the paper? The model name and number should be included in papers that deal with only one model.

Yes.

9. Does the abstract provide a concise and complete summary?

Yes.

10. Is the overall presentation well structured and clear?

Yes.

11. Is the language fluent and precise?

Yes.

12. Are mathematical formulae, symbols, abbreviations, and units correctly defined and used?

Yes

13. Should any parts of the paper (text, formulae, figures, tables) be clarified, reduced, combined, or eliminated?

No

14. Are the number and quality of references appropriate?

Yes

15. Is the amount and quality of supplementary material appropriate? For model description papers, authors are strongly encouraged to submit supplementary material containing the model code and a user manual. For development, technical and benchmarking papers, the submission of code to perform calculations described in the text is strongly encouraged.

Absence in this paper.

My suggestion - add the model equations plus parameterization as an appendix.

On the website - absence the important parameter of ice: an ice-cover thickness

We do not know what does mean ice-cover thickness. Do you think about 3d presentation of ice-cover thickness – could explain a little bit more please?

I have reviewed the manuscript “Activation of the operational ecohydrodynamic model (3D CEMBS) – the hydrodynamic part” submitted by Dzierzbicka-Glowacka et al.

The paper presents a modeling protocol. Through the review, I understand that the authors aimed to present the hydrodynamic part (coupled ocean-ice model) of the ecosystem model as a new operational model for the Baltic Sea. The results of simulations of 48-hour forecasts are presented for the model with resolutions of 9 km and 2 km on the website. This paper is sure to be a useful one for studying the ecosystem.

The information described in this manuscript is sure to be useful for me and others.

I hope the authors revise this manuscript. I recommend publication after revisions.

This paper presents an integrated, operational model of the Baltic ecosystem – the hydrodynamic part with the ice component.

My suggestion - add the model equations plus parameterization as an appendix.

Description of parametrization could be found in citations. This paper does not present parametrizations. Model equations have been added in the appendix.

I agree with the authors that in the case of the Baltic Sea, kpp is the best parametrization of vertical mixing, but in the paper - lack of description of the kpp.

We have added some sentences that describe kpp parametrization

On the website - absence of the important parameter of ice: ice-cover thickness.

Section ‘Ice component’ is poorly described. It contains too few results and lacks proper comparison with experimental data.

This paper does not present an ice model – it means in the paper is minimum information about the ice model

We would like to express our thanks to the Reviewer for his/her very instructive and profound comments.