

Geosci. Model Dev. Discuss., referee comment RC1  
<https://doi.org/10.5194/gmd-2022-160-RC1>, 2022  
© Author(s) 2022. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## **Comment on gmd-2022-160**

Anonymous Referee #1

---

Referee comment on "The Baltic Sea Model Intercomparison Project (BMIP) – a platform for model development, evaluation, and uncertainty assessment" by Matthias Gröger et al., Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2022-160-RC1>, 2022

---

### General comments

The paper addresses relevant scientific modeling issues using a never-before-used and undeniably rigorous protocol for comparing numerical models of the Baltic Sea dynamics. This method is useful in determining the discrepancies between the models because the same forcings were applied to each of the models, thus allowing the discrepancies between the models to be interpreted as being due to the model's own configuration or grid resolution. The authors have well introduced the lack of inter-comparison studies of regional models against other (global) models and the need to do so for the Baltic Sea and the North Sea. To justify the importance of this exercise, they highlighted the complexity of the site and the diversity of dynamic models used to simulate, among others, the general circulation. A state of the art of the models used in the study area is quite complete, it is presented at the beginning of the article. The detailed method is available on the project's website and allows for identical replication of the experiments. The added value is in the potential reproducibility of the method to other marginal seas. Thus, the technical approach is clearly explained with some exceptions that will be mentioned in the "Specific Comment" section.

The overall structure of the paper and its presentation make it clear and easy to read. However, some parts of the results need revision which I detail in the "Specific Comment". In addition, many of the figures need to be reworked. However, the main messages of the publication are clear but the results lack discussion and consideration of related work.

For more details on the changes to be made, please refer to the attached document.

Please also note the supplement to this comment:

<https://gmd.copernicus.org/preprints/gmd-2022-160/gmd-2022-160-RC1-supplement.pdf>