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Interactive comment on "A Model of Black Sea Circulation with Strait Exchange (2008–2018)" *by* Murat Gunduz et al.

Anonymous Referee #3

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In the manuscript the authors describe the implementation of a high resolution oceanographic model for the Black Sea and validate its decadal simulations with several in situ observational data sets. The manuscript provides an important contribution for the modelling of the Black Sea and may be published in the Geoscientific Model Development. I have several minor comments that should be addressed by the authors before the publication of the manuscript.

1. The abstract states that the boundary condition in the Marmara Sea is climatological and that this enables capturing the climatic change. Does this mean that the climatic change in the Black Sea is independent of the Mediterranean? Has this been demonstrated in the manuscript?

2. Page 1, line 20. I understand that the study cannot give the overview of all literature

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Discussion paper

on the Black Sea modelling. On the other hand, the study should at least collocate itself within the most recent modelling development in the Black Sea by comparing model resolutions and forcing.

3. Page 4, line 2: Figure 1 does not show the Kerch Strait bathymetry in detail and how it has been enlarged.

4. Page 5, lines 1-3: Why is the smoothing of bathymetry implemented in this model set-up?

5. Page 5, lines 5-8: This sentence is not grammatically correct and should be corrected.

6. Page 11, line 11: Is it “the depth of the 21 PSU isoline”?

7. Page 11, line 13: This statement should be rewritten to provide a quantitative comparison instead of an opinion.

8. Conclusion: How does this model implementation differ from the others?

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