

Interactive comment on “Effects of the basin dynamics on sea level rise in the Black Sea” by A. A. Kubryakov et al.

Anonymous Referee #1

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This manuscript addresses an important issue of the Black Sea oceanography. Unfortunately, the material is presented in such a way that the reader, who is not aware of the research in this field, could get an impression that the analysis of satellite altimeter data in the Black Sea and the understanding based on these data starts in 2016. I do not know whether the authors are unaware of the research in this field or they purposely presented completely unbalanced presentation of the state of the art. In both cases this leads me to the decision to reject this submission.

I admit that there is some part of novelty in this research, and if authors want to publish it, they first have to critically and in a balanced way present the advancements in the Black Sea oceanography based on the use of satellite data, as well as the advancements using satellite data in combination with tide gauge data. One example is the basic idea of the relationship between wind stress curl and sea level observed from

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satellites, which is known short after the first satellite altimeter missions.. Knowing this example, I find nothing new in the statement of authors (p. 11: A simple regression allows to reconstruct both the seasonal and interannual variability of DSL from the wind data alone.) The second example is the dynamics of coastal and open-ocean sea level (Fig. 2d).

Authors have to make a full inventory of what has been done in this field, clearly identify what is known from the past studies, what has not been solved, or has been addressed wrongly, and finally they have to clearly describe their step forward. For me there is almost nothing new in the first part of their manuscript, just a repetition of older research based on longer in time records. I would ask what new they would find when using about a 20-year long data set.

Authors say: “The strong coincidence between basin bathymetry and correlations patterns is well seen”. They have to know that this is not coincidence at all. Fig. 3 is just an illustration of the role of the Ekman pumping, which is largely addressed in the Black Sea literature. This “coincidence” reflects the dynamics of pycnocline (sea level just mirrors it).

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