**Ocean Science
Discussions**

Interactive comment on "Numerical modeling of dynamics of Russian south waters within the framework of operational oceanography tasks" *by* A. V. Grigoriev et al.

Anonymous Referee #2

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Review of the paper:

Numerical modeling of dynamics of Russian south waters within the framework of operational oceanography tasks

by A. V. Grigoriev et al.

This manuscript presents the results from the modeling of the Black Sea and Caspian Sea waters dynamics was conducted within the framework of the European ECOOP project and Russian project JISWO on the basis of the Princeton Ocean Model (POM).This issue is interesting and important, addressing the application of ocean models for nowcasting/forecasting of the Black Sea and the Caspian Sea.

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There are, however, a number of issues, which are not quite clear, making a MAJOR revision of this manuscript necessary.

There are important general comments related to the present manuscript like: (1) setting up a model is not explained in detailed (parameters, nesting); (2) model validation is not sufficient; (3) the extraction of scientific information from the results of simulations is somehow limited in the present form of the manuscript etc.

I have the following general comments:

1. The abstract is presented in a very general way and needs improvement. 2. The introduction (page 1866) does not present in sufficient details the state of the art. A scientific review of the existing works/publications of the topic is missing and has to be presented in sufficient details the revised manuscript. The reasons for perfoming this work need also an explaination. 3. Model set-up is not presented thoughtfully, for example a list pf the parameters used in the Black Sea model (POM) is missing. How those parameter set is being chosen and what were the sensitivities studies to make the existing set-up is not presented. More information about the one-way nesting is also needed as well. 4. Model validation is not sufficiently presented and very descriptive. It needs a substantial improvement in the revised manuscript. 5.Caspian Sea part is very short. Actually, the connection of the two basins is not well presented and seems a bit artificial. My suggestion is that the authors either remove the Caspian Sea from the revised manuscript or present it in sufficient details, including also some interconnections and comparisons between the two model configuration, results, validations, etc. 6. Conclusion part is very brief and not sufficiently well presented and needs substantial improvement. 7. Quality of the Figures needs substantial improvement.

Specific comments:

1. Figure 1 – The structure of the presented "System of nowcasting and forecasting of Black Sea water dynamics" is not appropriate and fully informative. The figure needs to be re-arranges. Additionally, the Black Sea horizontal patterns are too small and dif-

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ficult to rd. 2. What are the lateral boundary conditions for the high resolution coastal model? How have they been implemented in the model – page 1867? 3. Comparisons of the model results with satellite images (Figure 2, and page 1688) is only qualitatively/visually presented and from the figure 2 itself it is totally not clear how well/bad the model compares with the satellite images. Are the patterns from the satellite images and model circulation at the same time? The eddies formation and development presented by the model is not clear. 4. Screenshot taken by Explorer – Figure 4 (page 1880) is in Russian and could not be read by a wider scientific community. – Is there possibility to pre presented in English.? 5. Figure 7 presents qualitative comparisons between CTD data and model salinity . It is not fully clear neither from the test, nor from the figure caption. what exactly Figure 7c presents. 6 It could be useful to show als comparisons between the vertical sections for the temperature similar to Figure 7 for the salinity. . 7. The circulation patterns on Figure 8 indicate some problems of the lateral boundaries. Please comment. 8. Page 1870 - the analyses for figure 9 is not appropriate. 9. The comparison between the SST from the satellite images and model simulations (Page 1870 and Figure 10) is very general und fully insufficient to state about the model performance 10. The Caspian Sea description is very short. Either remove the Caspian Sea or present this part in the sufficient details 11.The references are given with numbers in the text, but there are nor numbers in the presented References list.

Conclusion: The paper can be accepted after major revision.

Interactive comment on Ocean Sci. Discuss., 8, 1865, 2011.