

Interactive comment on “Hypoxia disaster in waters adjacent to the Changjiang estuary” by X. F. Luo et al.

Anonymous Referee #1

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Review of the manuscript: Hypoxia disaster in waters adjacent to the Changjiang estuary X. Luo, H. Wei, Z. Liu, L. Zhao Submitted for publication on Natural Hazards and Earth System Science. Ref: 2016-59

The manuscript is based on a series of hydrological surveys in the region adjacent and offshore the Changjiang estuary, an area that suffers from frequent hypoxia/anoxia episodes. The background information, provided by the Authors in the introductory part of the manuscript, inform the reader that hypoxia development is due to the classical triggering factors: enhanced vertical stratification and organic matter accumulation and remineralisation in the lower water column, but they state that the timing of the hypoxia onset, as well as the location of the main hypoxia center is determined by the interplay between the water masses of the region. The main effort of the paper is about an effort to define the spatial and temporal hydrological characteristics underlying the

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development of the hypoxia events as well as their location.

I have to say that despite the rich and extensive dataset assembled, the effort is not successful because of a rather confusing analysis and description of the data collected. Therefore I do not recommend the publication of the manuscript in its present form. Below I list a series of remarks that hopefully the authors might consider in addressing the very serious major revision that the manuscript needs in order to be considered for publication in future.

1) The manuscript reads very much as a technical report rather than as a scientific paper. There is a long description of the paper figures that unfortunately does not help very much the reader to understand the following considerations.

2) The hydrology of the region (Water mass distribution and pathways of the main currents) is described by means of a qualitative cartoon only. However in the following the distribution of the observed hydrological properties (T S and DO) is related to specific water masses. Unfortunately the reader not knowledgeable with the oceanographic characteristics of the region, cannot fully understand and assess the dependence of the hypoxia onset and location on the basis of the changing hydrology. It is therefore strongly recommended that the authors define more strictly the hydrological properties of the water masses involved in the hypoxia dynamics of the region (the large quantity of data they collected should enable them to provide (for instance) T-S diagram whose analysis can help to define in a quantitative way the interplay among water masses. Also the use of T-DO and/or S-DO diagrams could greatly help the analysis and the considerations about hypoxia timing and location

3) The figure accompanying the manuscript are very poor and confusing. Again the large quantity of data they collected should deserve a better analysis, based (for instance) on an objective analysis procedure, who would allow the author to define better the location of the water masses. From a formal point of view the combined use of isolines and “colored” dots is adding confusion.

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4) As it is now it is very much difficult to relate the main conclusion of the paper with the data described and analysed earlier. This is due , as stated above, to the poor treatment of the data and the generic analysis procedure.

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