

Interactive comment on “Impact of seasonal oxygen deficiency on the phosphorous geochemistry of surface sediments along the Western Continental Shelf of India” by Josia Jacob et al.

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1. Contouring an area with single data points in each transect in ECMI (Fig.7), which can erroneously make a generalized distribution pattern for entire area.
2. Detrital P values as low as 1.5 ppm cannot be easily explained (which geological phases can have so low values? Upper crust and shale values are nearly 800 ppm) as even the carbonate sediments in WCMI have atleast 50 ppm of P.
3. In absence of a table (it is hard to interpret the numbers from contours), the data

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quality cannot be assessed. For example, when the precision of measurements is 5 to 15 %, representing the data with two decimal points even when the concentrations are in thousands of ppm is not logical.

4. A patch of high authigenic, organic and detrital P seen in one season in the central portion of outer shelf is seen as P-Fe in another season at a place south of the original location suggesting the influence of lateral transport and may not be strictly be related to seasonal water column anoxia. Detrital P also shows a clear signs of dispersal as it is concentrated in the central portion in one season is seen to be dissipated to entire area in another season. In effect, the differences they see may be mainly related to lateral transport, and invoking water column anoxia as a reason is without a strong base.

5. Overall the paper lacks thorough discussion of benthic biogeochemical processes (for a journal of repute such as yours) to explain the variability of all the phases (except to invoke desorption of sorbed P from Fe). For example, what are the processes which control the variability of organic and authigenic P. What is happening to all the fractions of reactive P and their relation to biogeochemistry of carbon (diagenesis, benthic fluxes... ..; sink switch... ..)?

6. Though they claim that this is the first study of ECMI sediments, the data does not provide any new information except to find that the sediments predominantly contain P-detrital.

7. There are spelling mistakes (for example they spell deposits as “deposites”).

8. At one place, outer shelf sediments are termed as inner shelf.

9. While they claim that this represents the first study on ECMI in the Introduction itself, first citation of 3 papers published on the same subject in the past on the Arabian Sea sediments in the front line oceanographic journals is relegated to p.15.

10. They mention the ship's name, but it would have been good to write the cruise nos.

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of two seasons for posterity.

11. How good is their analytical accuracy of dissolved Fe measurement is not mentioned. What are the standards used and what accuracies have they obtained?

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