

Interactive comment on “Flux and accumulation of sedimentary particles off the continental slope of Pakistan: a comparison of water column and seafloor estimates from the oxygen minimum zone, NE Arabian Sea” by H. Schulz and U. von Rad

Anonymous Referee #1

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The manuscript entitled ‘Flux and accumulation of sedimentary particles off the continental slope of Pakistan. . .’ authored by Schulz and von Rad addresses questions that are well within the principle scope of ‘Biogeosciences’. The comparison of sediment accumulation rates with sediment trap data helps to better understand how sediment distribution and sedimentary processes evolves in the seasonal cycle of the monsoon system. The precise determination of the age of a stratigraphic marker bed (F-turbidite) facilitates the quantitative comparison of sediments (and their grain size fractions) de-

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posited on the sea floor with the flux through the water column. Scientific methods and hypotheses used in the presented manuscript are of importance, however, some presented paragraphs need ‘streamlining’ (see below). The authors give proper credit to related publications. Mentioned below are some scientific ‘odds’ and editorial/technical comments which should be addressed to improve the manuscript: The title should be shortened. What does ‘water column and seafloor estimates’ mean? Suggestion: Sediment flux and -accumulation in the NE Arabian Sea p. 12418 line18: What does ‘individual bulk component’ mean? p. 12418 line19: Delete sentence ‘However. . .’. p. 12418 line21: The transfer from recent observations of high winter flux events (HFE) to explain sedimentation patterns over the past 5000 years comes a little bit ‘out of the blue’. Please remove ‘for the past 5000 yr’. p. 12418 line25: Explain ‘sudden shifts’. p. 12418 line26: Is there missing a sentence? Carbon preservation was not mentioned before. The second half of the abstract (beginning with line 19) needs some clearance/re-writing, because several information are stirred and not comprehensible. p. 12419 line3: Insert after ‘bottom’ water. p. 12419 line11: In the abstract a depth of 120 m for the upper OMZ boundary (instead of 200 m here) was given. p. 12419 line11: Delete ‘subsequent’. p. 12419 line12: Delete ‘very’. p. 12419 line17: Delete ‘offshore’. p. 12420 line8: Delete ‘off west Pakistan’. This sentence is very long. Split it into two sentences. The following sentence is to long too. p. 12420 line11: ‘sedimentary processes’. p. 12419 line14: The sentence beginning in line 14 is meaningless and should be deleted. p. 12421 line3: Explain ‘lateral advection’. Do you mean turbidites? p. 12421 line6: Replace ‘oxic’ by aerobic. p. 12421 line3 - 21: This paragraph is very extended and presents many details which are not necessarily needed for the discussion and interpretation of this here presented manuscript. p. 12421 line22: ‘Quantitative estimates’ of what? ‘are needed to better. . .’ p. 12421 line23: ‘In the present study, we will focus on the calculation of sediment accumulation rates along. . .’ p. 12421 line27: Insert after ‘productivity’ in more distal parts of the oceans. p. 12422 line1: The lateral fluxes may be high. p. 12422 line15: Here, four distinct tectono-sedimentologic settings are mentioned. But in the following only three settings

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are described. p. 12423 line3: This is a little bit confusing. Are the two different 12 cm thick layers (either red or white) the result of the same mobilizing/deposition event or does the red layer always follow up the white layer as stated in line 11 on this page? p. 12423 line22: 'difference' instead of 'significance' p. 12421 line23: Delete 'from'? and write reddish. p. 12424 line19: Delete 'the' after 'traps'. p. 12425 line23: Replace 'Alternatively' by 'Additionally'. p. 12425 line28: Delete 'homogenous'. p. 12426 line2: ...from a depth of.... p. 12426 line8: Lückge et al. (2002) concluded that the light layers are regularly occurring winter events due to extreme rainfall events intercalated in the dark layers. p. 12426 line19:were determined at the Leibniz.... p. 12427 line21: Insert after number 'of'. p. 12428 line5: Again, different depth information for the upper OMZ boundary. p. 12428 line5: What does 'eventually' mean? p. 12428 line9: Re-write this sentence. Suggestion 'Due to higher bottom water-O₂ concentrations allowing more intense bioturbation the boundary between the F-turbidite and the hemipelagic sediments is less sharp.....' p. 12428 line26: Do not understand the second half of the sentence. Why '100-250 years'? Does it mean that the varve counting is wrong? p. 12429 line1: 'and in general' lower at greater water depths... p. 12429 line25: Insert after 'restricted' to. p. 12429 line26: Insert after 'down' to. p. 12431 line9: Does 'foraminiferal fragmentation' mean P.F. debris? p. 12431 line9: Delete 'that' p. 12432 line1: Insert 'with increasing water depth...'. p. 12432 line13: This trend holds.... p. 12432 line14: Delete 'the sedimentary concentration of'. p. 12434 line2: Replace 'reconstruction' by calculation. p. 12434 line4: What are 'se floor and water columns estimates'? p. 12435 line22: Two times 'have received'. The sentence is too long.

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