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Discussions

Interactive comment on "Changes in detrital sediment supply to the central Yellow Sea since the Last Glacial Maximum" *by* Hyo Jin Koo and Hyen Goo Cho

Hyo Jin Koo and Hyen Goo Cho

hgcho@gnu.ac.kr

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Interactive comment on "Changes in detrital sediment supply to the central Yellow Sea since the Last Glacial Maximum" by Hyo Jin Koo and Hyen Goo Cho Neeraj Awasthi (Referee) aneeraj.geology@gmail.com Received and published: 23 July 2020

This work study provenance and dynamics of sediments from a core raised from the Central Yellow Sea using clay mineralogy and geochemical compositions since the Last Glacial Maximum. Based on the patterns of various proxies, the core was divided into four units as Unit 4 (15.5 ka–14.8 ka), the bottommost, Unit 3 (14.8 ka–12.1 ka), Unit 2 (12.1 ka–8.8 ka) and Unit 1 (< 8.8 ka), the topmost. Comparison of mineralogical

and geochemical compositions suggested the late last deglaciation sediments (Units 4 and 3) originated from all potential provenance rivers like Huanghe, Changjiang and western Korean rivers. The coarser sediments in Unit 3 were exclusively de-rived from Huanghe. In Unit-2 (early Holocene), the provenance of fine sediment changed from the Huanghe to the Changjiang whereas the source of coarse-grained sediments was most likely the western Korean rivers. The Changjiang source was dominant during the deposition of Unit 1 sediments with minor contributions from the western Korean rivers. The shift of river mouth positions, tide levels, and sea circulation patterns in tune with the fluctuating climate and sea levels were mainly held responsible for varying patterns in various proxies and transport mechanism from the river sources. The manuscript will be important work for researchers working on provenance of marine sediments and understanding sea circulations in the past. The manuscript is well-written in terms of English and in good structure. Scientifically, the interpretations are well-supported by the data and illustrations and there are no specific questions/issues. Some modifications are suggested in lines 154-164. Some citations are not referenced and some references are not cited. Other minor comments/technical corrections are highlighted/given in the annotated pdf. ANSWER. We have modified the manuscript according to your suggestion. We would like to thank for constructive reports with helpful comments and suggestions. âĂČ âŮĘ PDF-os-2020-60-RC1-supplement

Line 9 : On what basis? or what was the criteria for dividing into four units? Write as 'Based on....' ANSWER. We added the appropriate sentence. "The core can be divided into four units based on the various proxies such as grain size, clay mineralogy, geochemistry, and Sr-Nd isotopes: . . ."

Line 80: delete 'for' ANSWER. We deleted the 'for' as mentioned

Line 154-164 : Here, I don't understand whether you want to explain how factors such as grain size, heavy mineral content, and biogenic component affected your bulk sediment analysis or you want justify the use of REE or Nd isotopes as provenance indicator. If it is the first case, you need to modify para on that line and if it is the second

case, I think you better mention this in 'Introduction' part. ANSWER. We acquired the major and trace elements data from bulk sediments but Nd isotopes from the <63 μm fractions. In this study, we don't used the major elements because they are different with grain size. We only used the UCC-normalized REE and Sr-Nd isotopes independent of grain size. Therefore, this corresponds to the first case mentioned above, and we modified the paragraph accordingly. "Recent studies have emphasized caution for misinterpretation of sediment provenance due to other factors which influence the geochemical composition of riverine and marine sediments such as grain size and biogenic component (Yang et al., 2002; Song and Choi, 2009; Lim et al., 2015; Hu et al., 2018). For example, major elements Fe and Mg as well as some trace elements have been proposed to be useful elements as provenance indicator in the Yellow Sea (Song and Choi, 2009; Koo et al., 2018), but they are closely correlated with particle size, which can lead to misinterpretation of sediment provenance (Fig. 5a). . . . . For these reasons, we used only the UCC-normalized REE and Nd isotope, independent of grain size effect, to distinguish sediment provenance."

Line 243: Kwak et al., 2014 - Reference missing. ANSWER. We had written this reference incorrectly, thus revised it to 'Kwak et al., 2016'.

Reference Delete - Dong, Y.G., Guan, W.G., Chen, Q., Li, X.H., Liu, X.H. and Zeng, X.M.: Sediment transport in the Yellow Sea and East China Sea, Estuar. Coast. Shelf Sci., 93, 248–258, https://doi.org/10.1016/j.ecss.2011.04.003, 2011. ANSWER. We deleted unmentioned reference in the manuscript

Delete - Hu, B.Q., Yang, Z.S., Qiao, S.Q., Zhao, M.X., Fan, D.J., Wang, H.J., Bi, N.S. and Li, J.: Holocene shifts in riverine finegrained sediment supply to the East China Sea Distal Mud in response to climate change, Holocene, 24, 1253–1268, https://doi.org/10.1177/0959683614540963, 2014. ANSWER. We deleted unmentioned reference in the manuscript

Delete - Li, T.G., Nan, Q.Y., Jiang, B., Sun, R.T., Zhang, D.Y. and Li, Q.: Forma-

tion and evolution of the modern warm current system in the East China Sea and the Yellow Sea since the last deglaciation, Chin. J. Oceanol. Limnol., 27, 237–249, https://doi.org/10.1007/s00343-009-9149-4, 2009. ANSWER. We deleted unmentioned reference in the manuscript

Delete - Liu, S., Shi, X., Fang, X., Dou, Y., Liu, Y. and Wang, X.: Spatial and temporal distributions of clay minerals in mud deposits on the inner shelf of the East China Sea: Implications for paleoenvironmental changes in the Holocene. Quat. Int., 349, 270–279, https://doi.org/10.1016/j.quaint.2014.07.016, 2014. ANSWER. We deleted unmentioned reference in the manuscript

Please also note the supplement to this comment:
https://os.copernicus.org/preprints/os-2020-60/os-2020-60-AC1-supplement.pdf

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