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Climate of the Past Discussions

Interactive comment on "Holocene vegetation dynamics in response to climate change and hydrological processes in the Bohai region" *by* Chen Jinxia et al.

Anonymous Referee #2

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This is an interesting paper that provides a better understanding about the vegetation changes during Holocene in the Bohai Sea region in response to climate change and hydrological processes. Especially it reveals that two rapid and abrupt changes in salt marsh vegetation are linked with the river-system changes. In particular, the Introduction, Geographical settings, Climate and vegetation, materials and methods and discussion are generally well written and easy to follow, but the results need to be more clear and concise and express the key findings of this study including the pollen and spore concentrations. Use ages in lieu of depths to express different pollen zones and key features as this paper is mostly focused on timescale not depth and the readers are not supposed to remember depth wise ages. Besides, considering grammar,

there are several problems with subject-verb agreement, singular and plural expressions, and less use of cohesive devices. However, these problems could be improved with an English language expert. Some specific comments are below: Page 3, line 60: As I know, the Yellow River is The Yellow River is the largest sediment transport river in the world, please check this point. Page 3, line 72: Before using Acronym for the first time is not correct. Although AMS is a very common acronym, I'll suggest to use Accelerator Mass Spectrometry (AMS) and then use AMS. Page 5, line 118: "core collection" could be substituted by "Coring". Page 5, line 123: check the acronym "NIGLAS". Is it correct? Page 5, line 125: Did you identify the foraminifera? If so, provide their names for a better understanding. and why only 10 samples were selected? Provide an explanation. Page 6, line 132: Did you use wet or dried samples? Mention it. Page 6, line 133: Lycopodium needs to italicize. How many Lycopodium spores were in the standard tablet? Page 6, line 136: How many pollen and spore gains have you counted for each samples?

Page 6, line 134: KOH is highly corrosive and can degrade the pollen and spores if exposed for a long time. So, you need to clarify here, how long time you used the KOH. Page 6, line 137: How many pollen and spore were counted for each sample? You need to mention it. Page 6, line 138: In figure, there is CONISS. But, in this section there is no explanation of using CONISS and which software have you used for the graphs and CONISS. Make a clarification here with appropriate references. In addition, please, provide the formula used for palynomorph concentration calculation. Page 6, line 142: the expression is wrong. It should be mol/L or simply M. That is 1.0 mol/L HCl or 1.0 M HCl. Page 7, line 152: be consistent using Pb isotopic expressions throughout the manuscript. Page 7, line 170: In figures 3, 4, there are sub-zones also. Make the sentence clear by mentioning how many major and sub-zones there are. Page 7, line 172: In text it is "Palynological zone", but in Figures it is only "Zone". Be consistent using it. I'll suggest to use "Palynological zones" in the figure too. You have mentioned only the depth range. Include the ages also, like Palynological zones 1 (271–156 cm; 10000-6000 a BP). Page 8, line 176: Which type of abundance? ab-

solute or relative? make it clear. Page 8, line 185: This sentence need to make clear. Instead of "From 156 to 128 cm..." use "From depth of 156 to 128 cm...." elsewhere. Page 9, line 224: This word "our" is less formal and overused here i this manuscript. Try to limit its use in the manuscript. There are several other expressions used instead of "our core, our study, our data, and so on". Page 11, line 269: “Figure 3 and 6e” should be replaced by “Figures 3 and 6e” as you are referencing two figures. Correct it elsewhere in the manuscript. Section 5.5 Holocene temperature variations in North China and possible driving mechanisms: Why have you chosen Quercus as a temperate index? Provide and discuss the reasons of using it as a proxy for temperate index. Section 5.4 Palaeovegetation reconstruction and its climate significance: This section need more careful considerations interpreting paleovegetation and paleoclimate. Make comparisons and combination with the findings of other nearby cores in Bohai Sea area. Although there are several cited references, they are not sufficient to establish your findings. What I mean that you need to elaborately discuss your findings and other’s findings. Page 21, line 515, 517: YR in this paper has two meanings: hydrological and Yellow River. Please differentiate them.

In Table 1, the ages at depth of 119 and 129 cm are not consistent. Check and revise it. Instead of “mixed foraminifera” mention specific names and if possible the species names of them. In terms of the figures they are generally good, although you need to revise them and make more clear to understand even to a person outside of this research arena. Figure 1: Figure 1 (a) can be represented in terms of vegetation map, core locations and Figure 1 (b) can be represented along with sea bed topography to make it more interactive. Please, think about it. Figures 3 and 4: The species names are not italicized. Provide a classification of the taxa showed in the figure into trees, ferns, and herbs (upside of the graph). In addition, give a classification of arboreal, non-arboreal pollen types in the figures (may be at the bottom part). It will make the figure easier to interpret. Figure 5: There is no information about the position of land and Rivers. Point out the names in the maps for a clear understanding. Figure 8: The unit of Age is not consistent here. Sometimes you have used cal kyr BP, ka BP,

or cal. (a BP). Be consistent and use the instructions of the journal to express ages. Additional references: Ren, G. and Zhang, L., 1998. A preliminary mapped summary of Holocene pollen data for Northeast China. Quaternary Science Reviews, 17(6-7), pp.669-688. Kumar, S., Luo, C., Xiang, R., Liu, J., Chen, C. and Fang, X., 2019. High-resolution palynological record for vegetation and environment change during MIS 2 in the southern South China Sea. Marine Micropaleontology, 151(10), p.101769. Kumar, S., Luo, C., Rahman, A., Thilakanayaka, V., Khan, M.H.R., Liu, J. and Islam, G.A., 2019. Modern alluvial pollen distribution in Ganges–Brahmaputra–Meghna (GBM) floodplain and its paleoenvironmental significance. Review of Palaeobotany and Palynology, 267, pp.1-16. Li, J., Yang, S., Shu, J., Li, R., Chen, X., Meng, Y., Ye, S. and He, L., 2020. Vegetation history and environment changes since MIS 5 recorded by pollen assemblages in sediments from the western Bohai Sea, Northern China. Journal of Asian Earth Sciences, 187, p.104085.

Please also note the supplement to this comment:
https://www.clim-past-discuss.net/cp-2020-20/cp-2020-20-RC2-supplement.pdf

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