This manuscript by Jie Li and co-authors presents an extensive dataset of pollen samples from surface sediments in the Bohai Sea and the rivers that feed into it, investigating changes in pollen assemblages across these environments. The dataset is impressive, comprising more than 400 marine samples and over 100 river samples, and I applaud the authors for undertaking this thorough work.

The authors state that the primary application of this dataset is for paleoenvironmental studies in the Bohai-Yellow Sea region. However, this dataset provides valuable information on pollen transport from rivers to marine environments and will be of interest to marine palynologists globally. Overall, the manuscript is well written and I offer only a few minor comments below and in the annotated PDF that the authors may wish to consider to further strengthen the manuscript.

We thank the reviewer for the careful and constructive evaluation of our manuscript and for the positive assessment of the dataset and its broader significance for marine palynology. We have revised the manuscript in response to every comment. Our point-by-point responses are given below; the reviewer's comments are reproduced in italic type and our responses follow each comment.

General comments:

In Section 3.2, the authors state that a minimum of 200 terrestrial pollen grains were counted. Line 226 indicates that the number of grains counted per sample ranged from 59 to 1530, which is in contrast to the 200 grains stated in Section 2.3. Consider adding a sentence to the Methods describing why substantially more than 200 grains were counted in some samples.

We thank the reviewer for this observation. Sorry for our imprecise descriptions. The 200-grain count is generally a minimum counting threshold of terrestrial pollen and spore, not an upper limit. For pollen-spore-rich samples, counting was extended beyond this threshold to stabilize percentage estimates of less abundant taxa and to reduce counting errors in pollen concentration estimates derived from the added Lycopodium spores. Samples that did not reach 200 grains were retained and flagged as low-count samples, as described in Section 4.1. We have accordingly added a clarifying sentence to Section 3.2 to make this explicit.

In Figure 2, the white circles represent the number of pollen grains counted. It would be more informative and conventional to present pollen concentrations as grains/g of sediment, particularly because sample weights varied by as much as 10 g.

We agree. Pollen concentration is normalized to sediment mass and is therefore directly comparable among samples, whereas raw counts are sensitive to the variable mass of sediment processed (10 to 20 g). We have redrawn Figure 2 to display pollen concentration (grains g−1 dry sediment) as the primary mapped variable.

The frequency distribution of pollen sums is retained as the inset histogram so that the counting effort and data quality remain documented, and the caption has been updated accordingly.

Consider writing more abbreviations in full. This would improve the manuscript's readability, especially in sentences containing several abbreviations, such as line 419: "lower AP/NAP, P/A, and PB/NAP ratios."

We have expanded all abbreviations at first use and simplified sentences that carried several abbreviations. In particular, AP (arboreal pollen), NAP (non-arboreal pollen), P/A (Pinus/Artemisia ratio) and PB/NAP (pollen with bladders / non-arboreal pollen ratio) are now defined at first use in Section 5.2, and the sentence in question has been rewritten for clarity.

The manuscript interprets the marine samples as being influenced by aeolian pollen transport, accounting for their higher proportions of Pinus and other arboreal pollen. Although wind likely is transporting pollen to the marine sites, the increase in Pinus and other saccate pollen also reflects their hydrodynamic transport efficiency relative to herbaceous taxa. Herbaceous pollen is more likely to settle from suspension near the coast, whereas Pinus and other saccate pollen may remain suspended in water and be transported farther offshore. The manuscript should therefore acknowledge that increased Pinus abundance does not necessarily indicate an exclusively aeolian source and may also result from fluvial and marine transport processes.

We thank the reviewer for raising this important point. We agree that the offshore enrichment of saccate grains such as Pinus is not solely attributable to aeolian input, but rather reflects the combined effects of atmospheric transport and hydrodynamic sorting (fluvial and marine), whereby buoyant grains are preferentially transported farther offshore than herbaceous taxa, which settle more readily near the coast. To clarify this, we have revised the Abstract, Sections 4.2, 4.3.2, and 5.1 to emphasize this dual-transport mechanism.

Consider adding an additional figure/map that just has the names of the rivers and different bays in the Bohai Sea. For example, on line 274, “northern Liaodong Bay and Laizhou Bay”, the location of these bays is not shown on any map. Additionally, an overview map could be used to show the location of cores DGKS9602 and MD982194, which are mentioned in the text.

We agree that a dedicated locator map enhances readability. Accordingly, we have revised Figure 1 in two ways. First, we have labeled the three bays (Liaodong, Bohai, and Laizhou), the Central Basin, and the Bohai Strait, along with the names of the sixteen inflowing rivers. Second, we have added an inset overview map that situates the Bohai Sea within the broader Bohai, Yellow Sea, and East China Sea region, and also indicates the locations of cores DGKS9602 and MD982194 from the Okinawa Trough.

L144 “The main limitations of the dataset are that surface sediments integrate different time spans across settings” True but I don't think this is a major limitation! The oldest surface sample would only go back a few decades (I assume) and the local vegetation wouldn't have changed much in this time.

We apologize that our sedimentological information was is not rigorous enough. Although surface sediments in the Bohai Sea are dominated by modern fluvial input, small-scale relict deposits (late Pleistocene sediments) are distributed in the eastern Bohai.

Comments on Figures:

Figure 1:

- The colour schemes for the bathymetry and vegetation are very intense. I would consider picking a less vibrant yellow for the cultivated vegetation in particular.
- The bathymetry transitioning to black between 50–300 m water depth is very abrupt, and the black colour is quite intense. Some of the samples fall within this bathymetric range, so the legend indicates that these could be anywhere between 50 and 300 m water depth. Consider using a colour scheme with a more consistent gradient across the full bathymetric range.
- Write the marine sample name abbreviations in full.

We agree that a dedicated locator map improves readability. We have revised Figure 1 to label the three bays (Liaodong Bay, Bohai Bay, Laizhou Bay), the Central Basin and the Bohai Strait, together with the names of the sixteen inflowing rivers.
We have also added an inset overview map showing the Bohai Sea within the wider Bohai, Yellow Sea and East China Sea region, including the positions of the Okinawa Trough cores DGKS9602 and MD982194 cited in the text.
However, since the original data employ region-specific sample point numbers that serve only to distinguish samples from different areas and carry no substantive meaning, we have clarified this in the figure caption and have omitted the full names.

Figure 2:

- Change river names to white text to make it easier to read.
- Add a white background to the upper left corner plot and make the axes black to increase readability.

We have changed the river name labels to white text against the map background for better contrast, and have given the upper-left inset a white background with black axes. As noted in our response to Comment 2, the main panel now displays pollen concentration, while the pollen-sum frequency distribution has been retained in the inset.

Figure 4:

- Text is too small and very blurry so I can not read this plot.

We have increased the font size throughout Figure 4 and exported it at a higher resolution to ensure that all taxon labels and axis text are clearly legible.

Figure 5:

- Make all heading text size the same.
- Increase text size for readability.
- Very blurry, although this may just be an issue with the PDF.

We have standardized the font size for all panel headings, increased the label sizes throughout to improve readability, and re-exported the figure at a higher resolution to eliminate blurring.

Figure 6:

- The pink and blue bars require axes or a brief description explaining what they represent.
- Increase the font size where possible. Alternatively, consider arranging the figure as two plots wide by three plots long so that it occupies approximately two-thirds of a page, which would improve readability.

We have added explicit axis labels and a legend to clarify the meaning of the pink and blue bars, enlarged the font size for better readability, and rearranged the six panels into a two-column by three-row layout. This configuration allows the figure to occupy approximately two-thirds of a page while maintaining clear legibility.

Was some sediment just scooped from your original sample bags? Was the sediment homogenized prior to sub-sampling? Consider explaining this a bit more.

We thank the reviewer for this comment. The sub-samples used for pollen and grain-size analyses were not scooped directly from the original storage bags. After field collection, each sample was kept in a sealed, labelled bag and returned to the laboratory, where the entire sample was homogenised by thorough mixing before sub-sampling. Representative aliquots were then withdrawn for pollen analysis (10 to 20 g dry weight) and grain-size analysis, so that the two measurements derive from the same homogenised material rather than from different portions of the bag. We have added a sentence to Section 3.2 to make this procedure explicit.