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Climate of the Past Discussions

Interactive comment on "Extreme drought event in AD 1637–1643 in North China: New insight from pollen records in Kaifeng City" *by* Dexin Liu et al.

Anonymous Referee #2

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Comments to the Author:

I found the topic and general approach to be quite interesting and of potential interest to the journal. Although the "Chong Zhen drought event" has been recorded in historical document, it has not been confirmed by geological evidence. Based on sedimentary record and pollen analyses from a sediment core near the Kaifeng City, the authors found that Pollen records in the 5âĂŠ7.8 m interval provide evidence for the "Chong Zhen drought" event, which mesoxerophyte pollen taxa such as Chenopodiaceae, Taraxacum and Asteraceae reached the highest values, accompanied by the appearance of xerophyte pollen taxa such as Nitraria and Ephedra. However, there are still some problems that need to be improve. The manuscript should be published once my comments have been addressed.

The detailed problems are as follows:

Page 3 Line 8: "...the vicinity of Kaifeng used to be flooded many times." Line 10: "...when it became its capital city."

Page 4 Line 19: "In March 2003, the Kaifeng Municipal Archaeological Team....." You referred to a Song Dynasty archaeological layer but did not give the age or clearly state whether it was found at this site or elsewhere. In order to sustain your argument and convince your readers, your explanation need to describe clearly. Line 23: "...the Yellow River flood have disturbed Kaifeng City..."

Page 6 Lines 19âĂŠ21: "Studies on alluvial pollen suggest...in alluvial sedimentary deposits from other regions." The meaning is unclear. The existence of hydrodynamics and taphonomic process are mainly influencing the pollen deposition and pollen preservation. Line 25: "Chenopodiaceae and Asteraceae (including Artemisia) pollen, with relatively thicker pollen extine", in addition to thicker pollen extine, it may also has the higher gravity.

Page 7 Line 6: The "intermittent period" are also deposited, just not by flood deposition. It may be better replaced by "there was no flood deposition in study area". Line 18: "...with the Yellow River flood..., and its higher pollen content of xerophyte and mesoxerophyte plants..."

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