

Response to the comments on “Processes, spatial patterns and impacts of the 1743 Extreme heat event in North China from the perspective of historical documents”

We really appreciate the reviewer of all your comments and suggestions. They have enabled us to greatly improve our work. We also thank the Editor very much for taking time to track and review this manuscript. The revised manuscript is attached, and the main modifications were marked in colors.

Thanks again!

The authors have carefully revised the manuscript following the reviewers' comments, and significantly improved the readability of the manuscript. I therefore don't have further concerns. However, there are a few minor issues need to be modified.

We are really very grateful to reviewer for careful reviewing again and giving new valuable suggestions. These comments help making our manuscript more rigorous.

In response to these suggestions, our modifications and clarifications are as follows:

1. Several areas and place names are mentioned in the abstracts and texts, but are not shown in Figure 1. For example, where are ‘the valleys of southwestern Shanxi’, ‘the plains east of the Taihang Mountains’ and ‘North China Plain’? please clarify and add them in Figure 1.

- 1) They **have been clarified in Figure 1**: ‘Fenhe Valley’, ‘North China Plain’ and ‘Taihang Mountains’ **were labeled in Figure**. (pp 4, line 90).
- 2) The **text in 2.1 has also been modified** to more clearly introduce the geographical conditions of study area. (pp3, lines 79-82, highlighted in yellow)

2. The yellow river in 1743 was significantly different from that of modern times, as the channel of the Yellow River migrated significantly in 1855. It is necessary to add the old channel before 1855 in figures 1 and 2. In addition, please avoid use the term ‘plains north of the Yellow River’, in order to avoid misunderstanding.

- 1) The old channel before 1855 of the Yellow River has been added in Figure 1. (also in Figure 3, and 4).
- 2) Text has been added to 2.1 to simply describe the old channel of the Yellow River. (pp 3, lines 83-84, highlighted in yellow)
- 2) The term ‘plains north of the Yellow River’ **has been substituted in** ‘the plains of Hebei and Shandong Provinces’, **describing with administrative region**. (pp1, line 15, highlighted in yellow)

3. Figure 4 (a~e), the legends are too brief and not clear. Please either modify them or clarify the meanings of the legends in the figure title.

We have **modified the note under title** of this figure as ‘classified by impact object (see Tab 3): (a) Human; (b) animal; (c) plant; (d) facility; and (e) time series of impacts’, so that readers can understand what the legends mean according to table 3. (see pp 12, line 246, highlighted in yellow)

4. Lines 329-330. ‘During the Qing Dynasty, people in North China mainly engaged in agriculture, and long-term exposure to high temperatures was the main cause of death.’ Was agriculture related to the deaths? Please rewrite this sentence.

The sentence has been rewritten as ‘During the Qing Dynasty, people in North China mainly engaged in agriculture, which means long hours of outdoor work even in summer. Long-term exposure to high temperatures was the main cause of death. Even indoors, the threat of high temperatures is high due to lack of cooling facilities.’ (pp 16, lines 332-334, highlighted in yellow). We hope it will be clearer and more convincing.

5. Figure 6. It is not necessary to include so many national boundaries, as they are usually politically controversial.

The figure has been **replaced** by a new one **without national boundaries**. (see pp17, Figure 6)

6. Please note the period of the Qing Dynasty at its first appearance.

The period of the Qing Dynasty (1644-1911A.D) **has been noted at its first appearance**. (see pp2, line 44, highlighted in yellow)