

Response to Reviewer 2 :

We sincerely appreciate your constructive and detailed comments, which have significantly improved the clarity, consistency, and rigor of our manuscript. We have addressed all comments point-by-point below:

1. Language and grammar

(1) **Q:** Page 2, lines 30–33

Original: "illustrating the 'saturated effect' of warming on plant phenology- patterns echoed within urban settings."

Suggestion: Change to "illustrating the 'saturation effect' of warming on plant phenology — a pattern also observed in urban settings."

R: We have revised the sentence on Page 2, lines 30–33 as suggested, standardizing the term to "saturation effect" and correcting punctuation.

(2) **Q:** Page 12, lines 284–290

Several sentences are repeated verbatim ("A few cities in the north of China have a higher SOS..."). Please delete the duplicate sentences and keep only one clear statement.

R: We have removed the verbatim duplicate sentences on Page 12, lines 284–290, retaining only one clear statement.

(3) **Q:** Page 17, line 361

"Senories" should be corrected to "Scenarios". Please check the entire manuscript for similar typos.

R: We have corrected the typo "Senories" to "Scenarios" on Page 17, line 361, and conducted a full manuscript check to fix similar spelling errors.

(4) **Q:** Page 22, lines 468–470

Original: "While even the existence of 'saturation' effects, the lower background temperatures was not necessarily correspond to higher phenological sensitivity..."

Suggestion: Revise to "Despite the existence of saturation effects, lower background temperatures do not necessarily correspond to higher phenological sensitivity".

R: We have revised the sentence on Page 22, lines 468–470 as suggested, correcting grammatical errors.

2. Terminology and symbol consistency

(1)**Q:** Page 2, line 26 and elsewhere

The notation " $R_{t-EOS} R_{t-EOS}$ " contains inconsistent spacing. Please use a uniform format, e.g., " $R_{t-EOS} R_{t-EOS}$ ".

R: We have standardized the format of all symbols throughout the manuscript, fixing inconsistent spacing in notations such as " $R_{t-SOS} R_{t-EOS}$ ".

(2)**Q:** Page 10, lines 237–241

The subscript "(20)" is used to denote the 20-km buffer zone, but this is not clearly explained when the symbol $R_{t-SOS} R_{t-SOS}$ is first introduced. Please add a brief clarification (e.g., "the number in parentheses indicates distance from the city center in km").

R: We have added a clear clarification when the symbol R_{t-SOS} is first introduced, explicitly stating that the number in parentheses indicates the distance from the city center in km.

3. Reference list

Q: Please check for inconsistencies, e.g., "Jeonget et al." appears in the main text (page 2, line 47), but the reference list shows "Jeong et al." (line 625). Correct the spelling and ensure all cited works match the reference entries.

R: We have thoroughly checked all in-text citations and the reference list, corrected the formatting error of "Jeonget al." to "Jeong et al." , and ensured full consistency between citations and references.

4. Logical flow and phrasing

(1) **Q:** Page 4, lines 103–105

The phrase "drought can passively disrupt phenological responses" – the word "passively" is unusual here. Suggest using "negatively" or "adversely" .

R: We have replaced the non-standard term "passively" with the academic term "adversely" on Page 4, lines 103–105.

(2) **Q:** Page 24, section 4.4, title

"vetation type" is a typo. Correct to "vegetation type" .

R: We have corrected the typo "vetation type" to "vegetation type" in the title of Section 4.4 on Page 24.

5. Minor formatting issues

(1) **Q:** The use of double spacing after periods is inconsistent (e.g., page 3, line 63 vs. line 64). Please adopt a single consistent style throughout.

R: We have standardized the spacing after periods throughout the manuscript to ensure a consistent style.

(2) **Q:** In several places (e.g., page 9, line 199), the word "boasts" is slightly informal for a scientific paper; consider replacing with "has" or "provides" .

R: We have replaced the informal term "boasts" with the academic term "has" in all relevant instances, maintaining a professional tone.