

Response to Editor's Minor Revisions

Manuscript ID: egusphere-2024-2065

Title: Asian dust transport proteinaceous matter from the Gobi Desert to Northern China

Dear Editor Roya,

Thank you for your careful review of our manuscript and for identifying the minor issues in the supplementary materials. We sincerely appreciate your time and the thoughtful suggestions, which have further improved the clarity and precision of our paper. Below is a point-by-point response to your comments:

Comment: there's a sentence in Text 2 that needs to be rephrased: "If quantifying dust source contributions using nitrogen isotopic values from individual amino acids (e.g., glycine or leucine alone) by mixing local and Gobi dust sources would introduce larger uncertainty. "

**Response:** As suggested, we have rephrased this sentence. "Quantifying dust source contributions using nitrogen isotopic values from single amino acids (e.g., exclusively glycine or leucine) may introduce substantial uncertainty. "

Comment: There's a pink shaded area in the time series. Please add to caption what this highlighted area means (i.e., dust even period)

**Response:** Thank you for your suggestion. The meaning of the highlighted area has been added to the caption of Figure S4. "The yellow shaded area represents the dust period."

Comment: Fig S5: It's still not clear what the letter by each box and whisker plot mean. Please clarify this in the caption.

**Response:** Thank you for your suggestion. In the initial version, we employed a two-way ANOVA. As you rightly pointed out, the letter did not clearly present the results, particularly in illustrating isotopic differences between sampling sites. To address this, the revised version now conducts separate one-way ANOVAs for glycine and leucine  $\delta^{15}\text{N}$  values across sampling locations, with corresponding updates to the figure caption for clarity.

"Figure S5. Box-and-whisker plots show the  $\delta^{15}\text{N}$  values of combined Gly and Leu in the surface dust from the Gobi Desert and road dust from four North China Plain. Each box encompasses the 25<sup>th</sup>-75<sup>th</sup> percentiles. Whiskers and hollow squares inside each box are the SD and mean values, respectively. Dots are replicate measurements at each site. Differences in  $\delta^{15}\text{N}$  values of combined Gly and combined Leu between the Gobi Desert and four North China Plain cities were examined using one-way ANOVA with Tukey's HSD test ( $p < 0.05$ ). Statistically significant differences in mean Gly or Leu values between the Gobi Desert and individual cities are indicated by different letters (Tukey's HSD test)."

All modifications have been implemented in the revised supplementary materials, and the updated files have been re-uploaded to the submission system. These changes do not affect any data or conclusions in the main manuscript.

We sincerely appreciate your attention to these details. Please let us know if any further adjustments

are required. Thank you very much again.

Yours sincerely,

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