

Dear Reviewer,

Thank you for your detailed and insightful comments on our manuscript, "Fault-Controlled Distribution of Pre-seismic Thermal Anomalies: Insights from the Dingri Earthquakes, Tibet." The issues you raised are very pertinent and provide crucial guidance for us to further improve the paper. We have carefully studied each suggestion and plan to address them all in the revised manuscript. Below are our specific responses and revision plans regarding each point:

1. Regarding Writing and Formatting Issues

- (1) Reference Format: We will thoroughly check and standardize the format of all in-text citations to ensure they are grammatically consistent with the sentences or uniformly placed within parentheses. We will also correct all spacing and punctuation errors in the citations (e.g., lines 139, 258, 261, 263, 267, 274).
- (2) Terminology Consistency: The term "Dingri" will be used consistently throughout the entire text, including the abstract.
- (3) Magnitude Notation: Moment magnitude (M_w) values will be added to both the main text and the abstract.
- (4) Abstract Enhancement: The occurrence dates and magnitudes of the two mainshocks will be explicitly stated in the abstract.
- (5) Section Structure: To improve logical coherence, the original subsection "2.1" and Section 3 will be merged to form a more structurally complete section.
- (6) Language Expression: More cautious phrasing will be adopted in the "Discussion" and "Conclusions" sections. Appropriate emphasis will be placed on the limitations of this study regarding the number of fault zones, mainshock cases, and spatial scales to balance the certainty of the discussion.

2. Regarding Figures and Visualization

- (1) Comprehensive Optimization of Figure 1:
 - Add key geographical names (e.g., towns, peaks).
 - Clearly label the Shenzha–Dingjie fault zone and the Lhasa block terrain mentioned in the text.
 - Replace the current regional inset map with a larger-scale tectonic map reflecting the main terranes and regional tectonic setting.
 - Adjust font sizes and label positions to minimize overlap as much as possible.
 - Use prominent colors to highlight the seismogenic fault(s).
 - Optimize the layout by making the original enlarged area the main figure to improve the visibility of epicenter symbols in high-density areas.
 - Add fault kinematic symbols (e.g., indicating thrust, strike-slip motion).
 - Change the scale bar unit to kilometers (km) to be consistent with the elevation unit in meters (m).
- (2) Figures 4 & 8: A panel showing the temporal distribution of foreshocks, mainshocks, and aftershocks will be added below the respective thermal anomaly time series plots, forming composite figures to strengthen the text-figure correspondence.
- (3) Figures 5 & 9: Chinese characters in the color bars will be translated into English, and the epicenter locations will be clearly marked.
- (4) All Figures: Font sizes will be increased overall to ensure readability in the printed version.
- (5) New Tectonic Background Map: Consider integrating a more detailed seismotectonic

map into Figure 1 or adding it as a new figure. This map would show the inferred rupture zones of the two mainshocks and the distribution of major aftershocks.

3. Regarding Scientific Content and Interpretation

- (1) Expansion of Geological Background: In Section 2 (Study Area), we will add a more detailed tectonic description of the Dingmocuo fault and the Himalayan front. This will include geometric parameters (e.g., dip angle), kinematic characteristics, and relevant references to provide a more solid foundation for subsequent analysis.
- (2) Correction of Seismogenic Structure and Epicenter Location: We highly value and fully agree with your key comment regarding the "obvious mismatch between the seismogenic structure and the epicenter location." Upon re-examining geological data, focal mechanism solutions, and recommended literature such as Wu et al. (2025), we confirm the deviation in the originally labeled "Dengmocuo fault." Therefore, we will implement the following systematic corrections:
 - Revision of Analysis: All subsequent analyses will be based on the correctly identified seismogenic structure that aligns with the epicenter locations and focal mechanisms.
 - Restructuring of the Analytical Framework: The analytical sections related to the distribution of thermal anomalies, their spatiotemporal evolution, and their relationship with fault activity will be revised around the correct seismogenic structure.
 - In-depth Integration of Literature: We will fully cite and discuss the epicenter locations and tectonic model provided by Wu et al. (2025), comparing and relating them to the newly identified structure.
 - Comprehensive Update of Figures: All related tectonic maps (especially Figure 1) will be redrawn to highlight the correct seismogenic structure(s) and clearly show their spatial relationship with the epicenters and thermal anomaly areas. Cross-sectional schematic diagrams will be added if necessary.
 - Figure 1 shows the spatiotemporal distribution of thermal anomalies on January 7, 2025. It can be observed that the thermal anomalies along the seismogenic fault persist even after calibration. Further analysis will be conducted to obtain more detailed results.

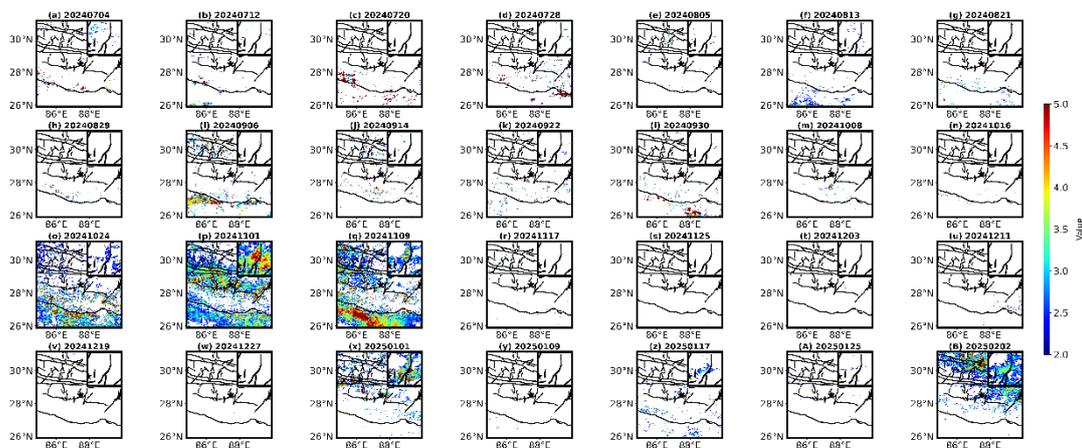


Fig. 1 Spatiotemporal Distribution of Thermal Anomalies with the January 7, 2025 Ms6.8 (Mw 7.1) Dingri Earthquake, Tibet

- Discussion on the Spatial Extent of Thermal Anomalies: A new paragraph will be added

to the "Discussion" section to explore potential reasons why the observed spatial extent of thermal anomalies prior to the March 20, 2020 mainshock was broader than that before the January 7, 2025 mainshock. Possible factors include differences in foreshock activity, heterogeneous stress distribution, or the influence of data time windows.

- Origin of Anomalies along the Himalayan Front: A dedicated paragraph will be added to discuss the potential origins of the thermal anomalies observed along the Himalayan orogenic front. Possible links to regional thrust tectonics, fluid migration, or other deep-seated processes will be considered.

4. Regarding Details and Typesetting

- (1) Correct the punctuation error in line 107.
- (2) Simplify "l exceeds 2, i.e., $l > 2$ " in line 108 to " $l > 2$ ".
- (3) Correct spacing and punctuation issues in the caption of Figure 12.
- (4) Correct spelling errors in line 294 and in the "Disclaimer" section.