

Referee #1

Comment 1: In Figure 7 the points are very spreaded and a linear regression is not fitting very well. It is clear in the square r values. May the authors comment in the manuscript the consequences of possible errors on that assumption?

Reply: We acknowledge the referee's observation regarding the data spread and the moderate R^2 values in Figure 7. This variability is inherent to ionospheric electric field data, which is often characterized by significant natural noise. This data dispersion may reflect the rapid and large fluctuations of the spatial electric field itself; however, an overall trend relationship with frequency is still present. The linear regression is intended to model precisely this underlying background power-law trend.

The potential 'error' from this linear assumption (i.e., the data spread away from the regression line) is explicitly accounted for in our methodology. The C-value, as defined in Eq. [6], is a composite parameter calculated from the slope a , intercept b , and the correlation coefficient R of this fit. Therefore, a low R^2 value (indicating a poorer fit or higher data dispersion) directly influences the resulting C-value, which is precisely the behavior required. This method quantifies the state of the spectral fit (including its stability, R , and parameters, a , b) rather than assuming a perfect, error-free linear relationship.

Comment 2: Authors: "According to our previous studies, the impact of geomagnetic disturbances on the C-value is relatively minor..." May the authors include those citations in the manuscripts. In general, magnetic storms as followed by several substorms, in this case those substorms are irrelevant as well? Please comment in the manuscript.

Reply: We sincerely thank the reviewer for this critical and insightful comment. We recognize that our previous reply—stating the impact of geomagnetic disturbances as "relatively minor"—was imprecise and could be easily misunderstood.

Following the reviewer's valuable suggestion, we have now conducted a direct comparison between our STL-C index and substorm activity using the Auroral Electrojet (AE) index. We examined the days with the strongest substorm activity during this period (specifically April 23, when the AE index exceeded 1000 nT, and May 6, when it approached 1000 nT) and found that our stl-c index showed no anomalous behavior on either day. Conversely, on the days when the STL-C value showed its strongest perturbations (April 21, April 29-30, and May 4), the AE index was consistently at a low,

quiet level.

Second, substorms originate in the polar regions and their primary impact is concentrated at mid-to-high latitudes. Therefore, general substorm activity has a limited effect, especially for the low-to-mid latitude earthquakes in this study, making the physical association weak.

Finally, this conclusion is further reinforced by the inherent properties of the STL algorithm itself. As we discuss in the manuscript, the STL algorithm is designed to separate signals by scale; global or large-scale perturbations (such as those from magnetic storms or substorms) are captured in the trend and seasonal components. Our STL-C anomaly, however, is derived from the residual component, which predominantly contains local perturbations. Therefore, even if a significant magnetic storm or substorm occurred concurrently with our anomaly, its global-scale signature would be methodologically filtered out by the STL decomposition, allowing the local seismic precursor signal to be isolated.

Thus, the impact of magnetic storm activity on the ionosphere is undeniable—rather than "minor"—but we have successfully isolated our signal from this influence through our specific algorithmic approach, data analysis, and physical exclusion arguments.

Comment 3: It would be interesting for the authors to add the explanation of the minor points in the manuscript as well. If I did not understand very well, other readers could have the same questions.

Reply: Thank you for this valuable feedback. You make an excellent point; if these details were not perfectly clear to you, they would likely confuse other readers as well. To address this, we have reviewed the manuscript and have added the necessary explanations and context in the appropriate sections to clarify these minor points. We believe these additions enhance the overall readability and clarity of the paper, and we appreciate you bringing this to our attention.

Referee #2

Comment 1: Figures are unclear, captions are too vague, for example figure 4, a) b) c) d) no caption description. All figures should be improved to be more descriptive and clear (including colorbars, units, etc). What are the red-orange-yellow-etc dots in Figure 8? and so on

Reply: We thank the reviewer for their valuable feedback regarding the clarity of our figures and captions. We agree that they required improvement and have, in response, undertaken a comprehensive revision of all figures throughout the manuscript. Specifically, we have updated the caption for Figure 4 to include clear descriptions for each subplot (a, b, c, and d), as requested. For Figure 8, we have clarified the caption and legend to explicitly state what the different colored dots (red, orange, yellow, etc.) represent. Beyond these specific examples, we have reviewed all other figures, improving labels, ensuring all axes and colorbars include appropriate units, and expanding all captions to ensure they are descriptive and self-explanatory. We are confident these revisions have significantly improved the readability and professionalism of the manuscript and appreciate the constructive guidance.

Comment 2: "The orbital revisit period of CSES-01 is approximately 5 days. The" - Authors should address how much does interpolation affect the interpretation of "daily" data?

Reply: We thank the reviewer for this crucial point regarding the 5-day revisit period, which is fundamental to interpreting satellite data. To clarify, we do not use any spatial interpolation to create our daily anomaly maps (e.g., Figure 8). The data presented in these "daily" panels are the original, non-interpolated STL-C values collected only along the specific ground tracks that passed through the defined spatial window on that particular day. Given the 5-day revisit cycle, the ground track necessarily shifts daily (by approximately 24° longitude). Therefore, our "daily" analysis does not represent a spatially complete map of the region, but rather a temporal snapshot of the data available from that day's pass. Our interpretation of the anomaly is based on this fact: the anomaly is considered significant precisely because it appears on multiple, successive, and spatially adjacent tracks as they pass near the epicentral region in the days leading up to the event. This approach avoids any artifacts that could be introduced by interpolation.

Comment 3: Authors should discuss/discard other possible sources for these "anomalies" interpreted as seismic precursors

Reply: We thank the reviewer for this important feedback. To address this, we have added a new paragraph at the beginning of Section 3.3 that specifically discusses and systematically rules out other potential non-seismic sources for the observed anomalies. In this new text, we detail our use of the K_p and Dst indices to quantitatively identify and subsequently exclude data from periods of significant geomagnetic activity. This analysis allowed us to filter out a strong magnetic storm on April 23-24 and moderate storms on May 6 and May 20. We also confirm in this section that no solar eclipses or artificial transmission signals were present in the study area during the analyzed period. By demonstrating that these primary non-seismic disturbances have been accounted for, we have strengthened our justification for interpreting the remaining identified ionospheric perturbations as potential earthquake precursors.

Comment 4:"can influences" - can influence , Line ~290

Reply: Thank you for pointing out this grammatical error. We have corrected "can influences" to "can influence" in the text as suggested.

Comment 5:"the wave peaks in the trend component" - the peaks of the trend component wave.

Reply: Thank you for this helpful suggestion. We agree that the new phrasing is clearer. We have revised the text to "the peaks of the trend component wave" as recommended.