

Manuscript No.: egusphere-2025-1524

Manuscript Title: Variation characteristics of sporadic-E layer in East Asia based on long-term data

Replies to Reviewer 1's Comments:

Maybe it's my fault but I couldn't download the revised version of the paper. I didn't find a link from which to download it.

Overall, I think that the answers given by the authors are pretty fair and acceptable, except the one related to the Kriging method.

Reply: Thank you very much for taking the time to review this manuscript and provide valuable feedback. We greatly appreciate the constructive comments and suggestions, which have helped us improve the quality and clarity of our work. I sincerely apologize, but for some reason, the submission system is preventing me from uploading the revised manuscript.

When the authors say that "Kriging interpolation is a classical spatial algorithm widely employed in studies of ionospheric and atmospheric distribution characteristics. The apparent distorted patches in the figures are primarily attributable to the rendering effects of the plotting software." I agree that "Kriging interpolation is a classical spatial algorithm widely employed in studies of ionospheric and atmospheric distribution characteristics. " but soon after when the authors say "The apparent distorted patches in the figures are primarily attributable to the rendering effects of the plotting software." cannot be accepted. What some figures in the paper are showing is not real, it is an artifact. In general, the first thing that should be evaluated is whether there exist the right conditions to apply the Kriging method, but in general, to apply any method to interpolate a discrete dataset of points. In my opinion, the information given but some figures shown by the authors is a little bit distorted.

Reply: Thank you for your comments. During the Kriging interpolation process, grid discretization of the interpolation area inevitably introduces errors. Therefore, the appearance of minor distorted structures in interpolated images is unavoidable. However, it can be confirmed that these distortions are not attributable to data issues. The degree of image distortion is significantly influenced by the chosen standard color map. The figure below demonstrates the visual effects of applying both 'jet' and 'parula' color maps to Figure 3 from this paper. As can be observed, the distortion presented by the 'parula' color map is markedly less pronounced than that of the 'jet' color map. In the revised manuscript, we have standardized the use of the 'parula' color map for all Kriging interpolation results, which has helped mitigate the image distortion to some extent.

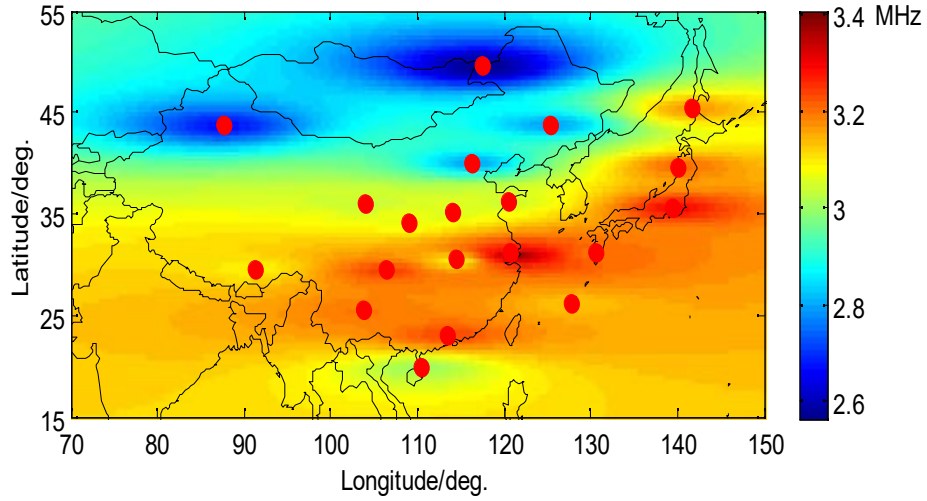


Fig.3 the distribution of foEs average values in East Asia (jet)

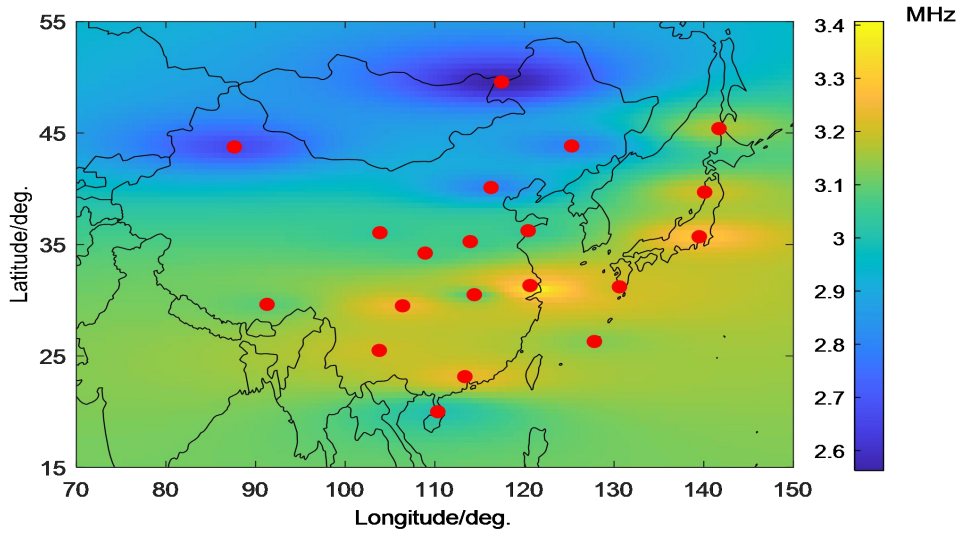


Fig.3 the distribution of foEs average values in East Asia (parula)

Thank you for your great effort and valuable time spent in reviewing this paper. We sincerely wish that with the careful revision of the paper, the revised manuscript is acceptable for publication.